DOCUMENT RESUME

ED 050 467 08 EA 003 488

AUTHOR	Jacobson, Marjory E.
TITLE	Coordination of Organic Curriculum Development in the Public Schools of Bloomfield Hills, Michigan. Final Report.
INSTITUTION	Bloomfield Hills School District, Mich.
SPONS AGENCY	National Center for Educational Research and Development (DHEW/CE), Washington, D.C.
BUREAU NO	BR-8-0176
PUB DATE	15 Oct 70
GRANT	OEG-0-8-080176-2679(085)
NOTE	83p.
EDRS PRICE	EDRS Price MF-$0.65 HC-$3.29
DESCRIPTORS	Behavioral Objectives, Communication (Thought Transfer), *Continuous Progress Plan, Coordination, *Curriculum Design, Curriculum Development, Educational Change, Educational Objectives, Evaluation, Individualized Instruction, Organization, *Program Administration, Secondary Education, *Student Centered Curriculum
IDENTIFIERS	Bloomfield Hills Michigan, *Educational System for the Seventies, ES 70, Learning Packages

ABSTRACT

This document describes the efforts of program administrators to implement an organic curriculum in the elementary and secondary schools of Bloomfield Hills, Michigan. The chief program administrator coordinated curriculum design and implementation under the continuous progress plan, selected and evaluated instructional materials, and established communication with the community. Organic curriculum is a learner- rather than a teacher-centered course of study utilizing learning packages specifying behavioral objectives. Appendixes present a variety of related project materials. (RA)

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FINAL REPORT

Project No. 8-0176

Grant No. OEG-0-8-080176-2679 (085)

Coordination of Organic Curriculum Development in the Public Schools of Bloomfield Hills, Michigan

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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U.S. DEPARTMENT OF
HEALTH, EDUCATION AND WELFARE

Office of Education
Bureau of Research

FINAL REPORT

Project No. 8-0176

Grant No. OEG-0-8-080176-2679 (085)

Coordination of Organic Curriculum Development in the Public Schools of Bloomfield Hills, Michigan

Dr. Robert E. Boston
Assistant Superintendent for Instruction
Project Director

Bloomfield Hills School District
4175 Andover Road
Bloomfield Hills, Michigan 48013

October 15, 1970

Submitted
by
Dr. Marjory E. Jacobson
ES '70 Coordinator

The research reported herein was performed pursuant to a grant with the Office of Education, U.S. Department of Health, Education and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Office of Education position or policy.

U.S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE

Office of Education
Bureau of Research

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Department of Health, Education, and Welfare

Common Accounting

NAME AND ADDRESS OF GRANTEE INSTITUTION	TRANSACTION NO.	Grant No. OEG-0-8-080176-2679 (085)
Bloomfield Hills School District 4175 Andover Road Bloomfield Hills, Michigan 48013 Dr. Fred D. Thorin, Superintendent of Schools	92860861 Vendor INSTITUTIONAL ID NO. 409202	DATE OF THIS REPORTING PERIOD FROM January 15, 1968 TO June 30, 1970 PROJECT PERIOD FROM January 15, 1968 TO June 30, 1970 ☒ CHECK IF FINAL REPORT

1. Expenditures of DHEW Funds for this Report Period

a. Personnel	$ 50,331.00	h. Alterations and renovations	
b. Consultant services		i. Other	
c. Equipment			
d. Supplies		j. Total direct costs	57,292.00
e. Travel, domestic	6,961.00	k. Indirect costs: Rate ____% ☐ S&W ☐ TDC	
f. Travel, foreign		Base $____	
g. Patient care costs		l. TOTAL	$ 57,292.00

2. Expenditures from Prior Periods (previously reported)	52,333.00
3. Cumulative Expenditures	57,292.00
4. Total Amount Awarded - Cumulatively (Grant: $57,292.00)	Received 51,563.00
5. Unexpended Balance (Item 4 less Item 3)	-0-
6. Unliquidated Obligations	-0-
7. Unobligated Balance (Item 5 less Item 6)	-0-
8.a. Cost Sharing Information - Grantee Contribution This Period	47,255.00
b. % of Total Project Costs (Item 8a divided by total of Items 1 and 8a)	% 45.2
9.a. Interest/Income (enclose check)	-0-
b. Other Refundable Income (enclose check)	-0-

10. Remarks

Bloomfield Hills School District has not yet received the balance of $5,729.00. We shall request this 10% balance upon approval of the Final Report.

I hereby certify that this report is true and correct to the best of my knowledge, and that all expenditures reported herein have been made in accordance with appropriate grant policies and for the purposes set forth in the application and award documents.

Dr. Marjory E. Jacobson — February 11, 1971

SIGNATURE OF INSTITUTION OFFICER — DATE

Dr. Marjory E. Jacobson, ES '70 Coordinator

HEW-489 (REV. 9/67) **REPORT OF RESEARCH GRANT EXPENDITURES** BUDGET BUREAU NO. 122-R0119

I. INTRODUCTION

A. COMPREHENSIVE SUMMARY OF RESEARCH AND DEVELOPMENT PROGRAM

1. Inputs for Project

In May 1967 The Bureau of Research of the U. S. Office of Education joined with seventeen secondary school districts located in fourteen states in creating a new educational program at the high-school level. This project, known as Educational System for the Seventies (ES'70), projected the development of the "organic" curriculum.

The tasks for the ES'70 Project were to achieve the following objectives:

1.) A learner-centered curriculum, highly relevant to the adult roles which the student would be expected to play upon graduation.

2.) Individualized or "customized" education for each student.

3.) Utilization of appropriately tested and educationally oriented technology.

4.) Employment of suitable organizational and administrative patterns.

5.) Economic practicality within available resources.

The content of this report focusses primarily on the efforts of the Bloomfield Hills School District to develop this curriculum as a member of the ES'70 Project team. Previous to and paralleling the development of the "organic" curriculum, the district constructed a dramatic reconstruction of a K - 12 educational program. It is designed to individualize instruction by means of a set of realistic behavioral objectives. The learning program is skill oriented depending on the mastery of functional skills for inquiry and communication. Operationally, it is based on the interpretation of a systems approach to learning occurring within an acceptable hierarchy of cognitive skills. This curriculum model was designed by the first local ES'70 Coordinator, Dr. Robert E. Boston, Assistant Superintendent of Instruction.

The overall objective for ES'70 is to redefine educational goals and to overhaul the educational process to meet the criteria for developing the "organic" curriculum. Therefore, objectives for the local program coordinators included:

1.) To delimit general purposes of the organic curriculum to the local school districts.

2.) To utilize all available funding sources for support.

3.) To deal with a variety of complex questions which may arise from a radical remodeling of the secondary curriculum.

4.) To prepare a climate for, and bring about, change in the attitudes and behavior of people so that the curriculum becomes learner centered.

5.) To develop an integrated, comprehensive curriculum, grades nine through twelve.

6.) To act as agents for communication.

7.) To evaluate each step of the program.

2. Process

Nationally, the training sessions were accomplished through workshops. In 1967 a two-week summer workshop was held in Bloomfield Hills to prepare the local coordinators to assume their responsibilities. In addition, conferences were held periodically to effect an information exchange. The management concerns were handled by the E. F. Shelley Company, Inc. They were communicated directly, by means of PERT charts, brochures, and a network newsletter. Finally, a number of special training institutes were arranged for ES'70 personnel.

Locally, at the initiation of the ES'70 Project, the Continuous-Progress Curriculum was already operational in three schools, K - 12. This curriculum has been developed and expanded since 1967. A Federal project has made it possible to revise and refine the original behavioral objectives. Summer workshops have advanced this project, provided in-

service for teachers, and accelerated the production of essential curriculum materials. Communication has been encouraged: (1) letters, (2) visits, and (3) consultant services.

3. Outputs

A curriculum for individualizing instruction is operational, K - 12, in all courses. It is based on a system of monitoring achievements with growth, the differences between post- and pre-test scores, as measured by the requisites of behavioral objectives.

To meet the objectives of the Federal Contract for Project No. 0-80653, an evaluation of the behavioral objectives for all disciplines, K - 12, was completed based on the assessment of the objectives with reference to prescribed criteria including coded off-the-shelf and locally constructed materials.

During the spring of 1969 generalizations were drawn for comparing results on "Iowa Tests of Basic Skills" and "Iowa Tests of Educational Development" between the continuous-progress and traditional schools. These results did not indicate statistically significant differences in achievement between the two types of schools.

Reports were prepared as stated in the Federal Grant: (1) Progress reports were submitted each quarter and (2) This final report reviews the three-year study.

Recommendations evolving from the research experiences of this project indicate the following on-going needs:

1.) In-Service,

2.) Production and Publishing,

3.) Computer Management,

4.) Support by Governmental and Private-Funding Agencies.

B. PROBLEMS UNDER CONSIDERATION

The appearance of the ES '70 Project on the National Scene early in 1967 was significant with respect to timing in the history of education. The results of the upheaval created by Sputnik were not compatible with compulsory education -- years of schooling required of all educable youth. The striving for academic excellence achieved its goal, in part, but the by-products were effects criticized by many both within and outside the halls of learning. Questions were asked why attention was focused on the academic talented to the exclusion of other students, why Johnny can't read, why enrollment in some of the more advanced elective courses were diminishing so rapidly, etc. Pressure was just beginning to be relieved in the area of academic excellence for the few and translated to a new term "accountability." Ralph Tyler, as well as others, expressed concern about what the schools were teaching. Our space successes made it possible for greater concern to be centered on the educational proficiencies of all our students and a program of general evaluation known as the National Assessment of Educational Progress evolved. During this time hopes were high that the Federal Government would continue the financial support necessary to achieve most of the expectations for education; the Federal Legislation of 1965 had been the break through stimulating educators to look at their current curricula and to dream up the ultimate in educational programs if financial rewards would be available. Such was the setting from which the ES '70 Project was launched.

At this time it was true that the United States was educating more of its young people than any other nation but this was not the solution to all the educational problems. Although eight out of ten students were candidates for jobs requiring less than a college degree, yet only one of these eight received any kind of occupational training in the public schools.

It was evident that the growing modern economy dependslargely on the ability to adapt to changes in productive capacity. It requires more and more people well prepared for the professions, technical services, and occupational trades. Young jobseekers need a broad base of cognitive, communication and social skills.

Other questions with regard to job-orientation are even more critical to the needs of students in leaving school. Many of the former types of entry-level occupations are now unavailable to teen-agers entering the labor market. Furthermore, a person's first job can no longer be viewed as a final career commitment. And unfortunately, much of what is now taught in our public schools is directed toward the type of student rather than toward his role in a world where he will live and earn a living. The tendency to separate the college-bound from the vocational student has penalized both types of students. Those who plan to go on to college will probably not be prepared to cope with the question, "What happens if I leave college before graduation?" On the other hand, students pursuing current vocational programs frequently find themselves being trained for a very narrow range of

occupational skills. Besides, the third, and a large segment of the public school population, is not categorized as either vocational or college-preparatory. These "general" students often receive instruction which, in too many instances, provides little of either academic or vocational preparation that would be useful to them in entering the adult world.

From this perspective of educational problems, the current allocation of resources and the types of curricula available in the secondary schools could be considered inadequate.

C. BACKGROUND FOR THE STUDY

1. United States Office of Education

In May 1967 The Bureau of Research of the U.S.O.E. joined with seventeen high school districts located in fourteen states in creating a new educational program at the high school level. It is a local-state-federal effort to accomplish a major and specific goal: the systematic development of an improved comprehensive secondary-school curriculum that would be relevant, individualized, and economically feasible. The development of this new curriculum was the heart of the project.

It was within the context of a systems approach that the research program was to be undertaken. It was not only a research but also a demonstration project. Participants were engaged in specific activities directly related to the total design of the program.

These participants represented local school districts across the United States, their respective state education departments, universities, foundations, private and non-profit institutions, business and labor organizations, the U.S. Office of Education and other federal agencies. The cooperating schools represent old, new, small and large communities; geographically distributed in various locations; culturally mixed with varying levels of financial support from the poorest to the very wealthy.

2. ES '70 Corporation

Action was taken to convert the network to a corporation in March 1969. Named "ES '70," this formal entity is a non-profit membership corporation incorporated under the laws of the District of Columbia. Eliot Spack, Mineola, New York, is acting executive-secretary.

The decision to restructure the network followed a consensus that a formal separation of the program from the auspices of the U.S.O.E. Bureau of Research would permit other agencies of the federal government to participate as well. Thus, it has been the expectation to enhance the program by strengthening and broadening the participation of each of the partners at the local, state, and federal levels.

3. Management Consultants

When the ES '70 Network was formed, management assistance was also provided to the network through the services of the E. F. Shelley and Company, Incorporated. With the acceptance of a plan to maintain an Executive Secretariat's office, it was agreed that the management assistance contract with E. F. Shelley and Company would be gradually phased out and terminated at the expiration of their contract in November 1969.

During the Mineola Conference in October 1970, the announcement was made that The New York Institute of Technology, Westbury, Long Island, would be providing management and information services for the ES '70 Corporation.

4. Local Member of the ES '70 Consortium: Bloomfield Hills, Michigan

Discontent with education has been evident in reports and publications. Such outward signs have encouraged professional educators and lay leaders alike to take a "hard look" at what is going on in our schools. Because they are dissatisfied with what they see, there is a clamor for change. An example of an action program to meet this need has been instigated by the Governor of Michigan. He cited to the State Legislature in April 1969 the lack of educational goals in making the following recommendation:

> Specific goals and objectives of the educational system, criteria for assessing its accomplishments, and systems for insuring its accountability are to be developed.

The Bloomfield Hills Board of Education predated this and the efforts of many others in this regard. During the 1965-1966 School Year its members accepted an evolving curriculum, innovative in character and individualizing instruction in function. A description of the program can be separated into two parts, as follows:

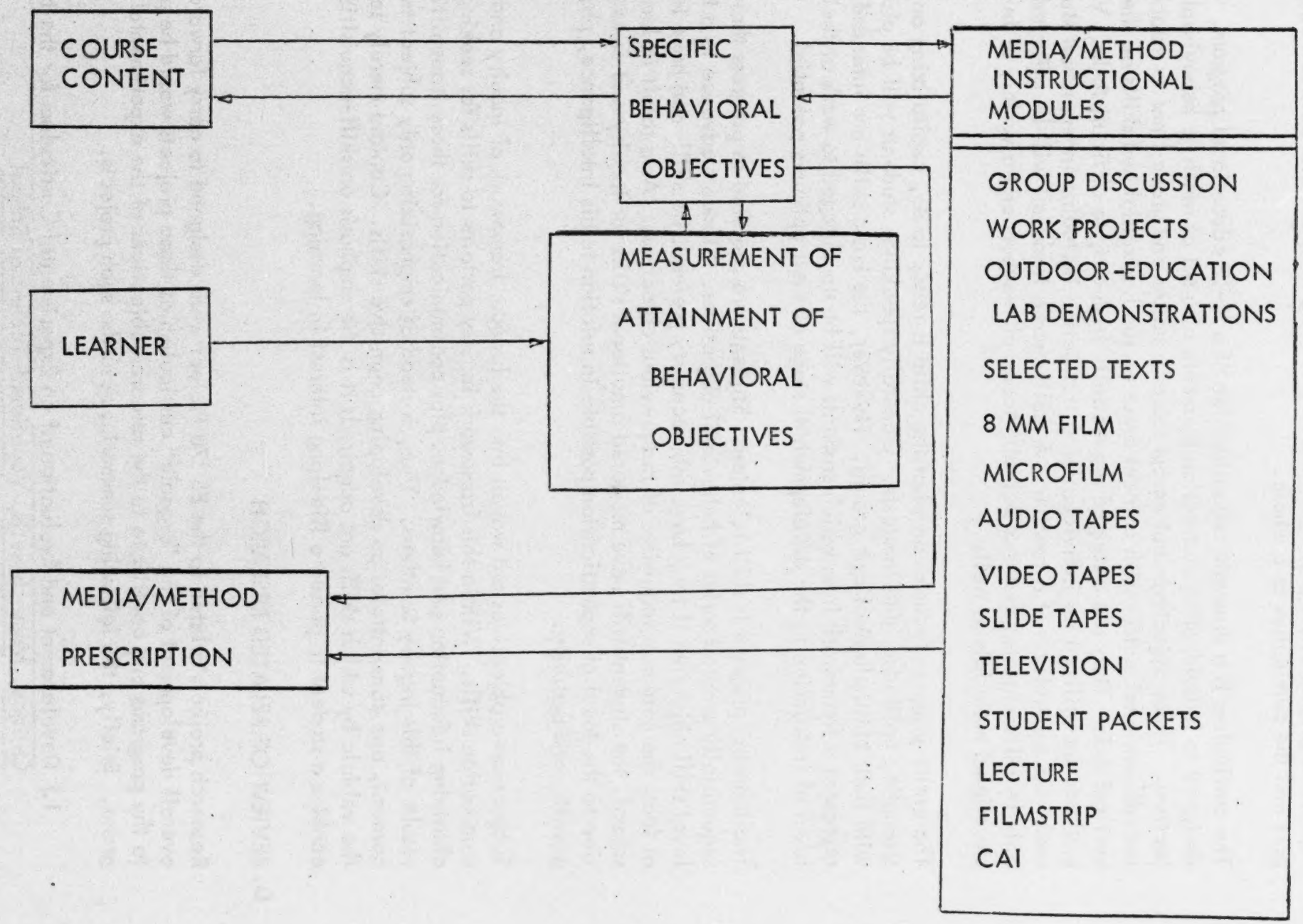
1.) The role of the Bloomfield Hills School System as a synergistic unit which will function with other interested groups to effect educational change, and

2.) The design of the Bloomfield Hills continuous-progress curriculum model including steps for its development, its innovational aspects, and some of its adoptive characteristics of a generic nature.

Since September 1967 this curriculum has become "the way of life" for at least three thousand boys and girls. The curriculum model illustrated in Figure 1 was designed by the first Local ES '70 Coordinator, Dr. Robert E. Boston. It is based on the interpretation of a systems approach to learning occurring within an acceptable hierarchy of cognitive skills. To fit the format of the system, learning is defined as the modification of behavior measured by the specifications of achievement required by a performance objective. Achievement is measured by the differences between post-

Figure 1.

CONCEPTUAL MODEL - INDIVIDUALIZING INSTRUCTION



test and pretest scores. This "Conceptual Model for Individualizing Instruction" represents graphically the interrelationships among the parts and between each part and the curriculum as a whole.

The curriculum is a dramatic reconstruction of a K-12 educational program. It was designed to individualize instruction by means of a set of realistic behavioral objectives. These objectives cut across subject-matter and grade lines to establish a two-dimensional matrix with content areas on the horizontal and skills on the vertical axis. They are arranged sequentially from easy to difficult tasks. Various methods are utilized for individualizing instruction including independent study under the supervision of a teacher. A multi-media trade-off will be effected not only by differentiated methods but with teams of teachers and a variety of instructional materials as well.

The entire program focusses on what the child is ready to do, capitalizing on his strengths, aptitudes, and interests. Generally speaking, students will be placed with their chronological age-groups. However, the basic skills are intended to represent a framework from which students will be encouraged to work at their level of instruction to the developmental stage of their optimum potential.

The learning program is skill oriented. Students are required to progress through a sequentially ordered series of behavioral objectives. Students advance to a higher-level skill objective if they have the necessary prerequisite skills and have fulfilled at least the minimum requisites of the previous objectives. As a result in leaving school, the student will have mastered functional skills for inquiry and communication to the level of sophistication possible in relation to his intelligence, physical growth, and maturity.

Subject-area objectives are woven into the broader framework of inquiry and communication skills. Within this framework inquiry pertains to skills for seeking and obtaining information and knowledge, plus communication for those transmitting the results of this inquiry to others. Thus, instead of emphasizing only subject-matter content, one concentrates on developing cognitive skills. Content merely serves as the vehicle by which skills are acquired; it is the emphasis on skill-acquisition that enables a student to pursue a life-long interest in learning.

D. REVIEW OF RELATED RESEARCH

Research projects related to the ES '70 Project were designed to carry forward the overall development of the "organic" curriculum as these projects would be phased into the programs and contribute to the research objectives of the experimental programs. Briefly, the following summaries describe such projects.

1.) Development and Evaluation of an Experimental Curriculum for the New Quincy, Massachusetts, Vocational-Technical School

This project will demonstrate the increased effectiveness of instruction

whose content is explicitly derived from analysis of desired behavior after graduation.

2.) To Develop a Repertoire of Techniques in Which Students Can Be Scheduled Out of the Graded-School Organization and into a More Individualized Curriculum

The major purpose of this project is to develop the repertoire, as explained in the title, in Melbourne High School, Melbourne, Florida.

3.) Development and Testing of a Vocational Decision Information System (VDIS)

Harvard University will improve vocational decision making through development of a computer-based data storage and retrieval system.

4.) The Preparation of Curriculum Materials and Development of Teachers for an Experimental Application of the Cluster Concept of Vocational Education at the Secondary School Level

This research was funded at the University of Maryland.

5.) Computer - Based Vocational Guidance System

American Institutes for Research will develop and evaluate a new comprehensive system of guidance which integrates student measures with guidance materials.

6.) A Programmed Course in the Technique of Instructional Technology

The contract to construct this course was awarded to General Programmed Teaching, a Division of Commerce Clearing House, Inc.

7.) A Planning Study To Determine the Feasibility of Developing a New Business and Office Education Curriculum

The Center for Vocational and Technical Education, sponsored by Wayne State University, will plan a major curriculum project in the Office-Occupation area through the utilization of a systems design.

8.) A Feasibility Study of a Central Computer Facility for an Educational System

General Learning Corporation will supply the functional analysis and preliminary specifications for a central computer facility.

9.) Exploratory Development of Models of Planned Educational Change

The NTL Institute for Applied Behavioral Science will contribute important

generalizations suggesting empirical foundations for change in school systems.

10.) A Computer - Managed System for Individualizing and Optimizing Education

New York Institute of Technology will test the viability of this approach to developing academic programs in mathematics, physics, electronics technology and the computer sciences, and the management system.

11.) The Evaluation of Three U.S. Air Force Instructional Systems within Civilian Education

The Aerospace Education Foundation will determine empirically the feasibility of adapting these instructional systems.

12.) Study of Curriculum for Occupational Preparation

Rutgers University will develop and test the process - object framework for classifying samples of everyday behavior.

13.) Curriculum Revision Based on Behavioral Objectives for Twelve-Month, Four - Quarter Schools

Atlanta, Georgia, Public Schools will plan, develop, and initiate revision of the Atlanta Secondary Schools Curriculum.

14.) An Analysis of the Teacher's Role in an Innovative Prototype School

Nova University will conduct this analysis in Nova Elementary and Nova High School.

15.) Development of a Multi-Media Course in Economics for the U.S. Naval Academy

Sterling Institute will develop and test three courses and the computer-managed instructional programs required to operate and assess them.

16.) Development of a Multi-Media Course in Leadership for the U.S. Naval Academy

Westinghouse Learning Corporation will develop and test three courses and the computer-managed instructional programs required to operate and assess them.

17.) Development of Citizenship Education Objectives

Columbia University will specify objectives expressed in behavioral terms for curriculum in citizenship.

18) The ES '70 Arts Curriculum Project

Dr. George D. Stoddard, Project Director, will move the various forms of art education and art experience toward an acceptance level comparable to student interest in science or the humanities.

A bibliography[1] relevant to the components of the "organic curriculum" and of the Systems Approach appears in the Appendices.

E. SCOPE OF THE STUDY, LIMITATIONS OF THE PROJECT, AND RESEARCH HYPOTHESES

1. Scope of the Study

The United States Office of Education initiated the ES '70 three years ago in a network of fifteen school districts throughout the United States. Over a million students in eighteen different states and several million dollars in research and development money have been involved in this major demonstration effort. At the time the ES '70 Project was phased out, the following schools made up the membership roster of the network: Atlanta, Georgia; Baltimore, Maryland; Bloomfield Hills, Michigan; Boulder, Colorado; Breathitt County, Kentucky; Broward County (Nova), Florida; Chicago (Archdiocese School Board), Illinois; Duluth, Minnesota; Houston, Texas; Mamaroneck, New York; Mineola, New York; Monroe, Michigan; Philadelphia, Pennsylvania; Portland, Oregon; Quincy, Massachusetts; San Antonio, Texas; San Mateo, California; Santa Fe (Institute of American Indian Arts), New Mexico; and Willingboro, New Jersey.

This network was organized to consolidate in consortium efforts of more fragmented reform programs. The unique element of this undertaking was the linkage of Research and Development resources personnel with the local schools'practioner. The sample of school districts was selected to represent a geographical and regional cross - section of the nation's more than 20,000 school districts. Some were urban, others rural; some were well financed, others poorly financed; some were innovative, others were not. The combined student population approximated 1.3 million students. Every major ethnic and racial group was represented: Negro, Mexican - American, Puerto Rican, Indian - American, and White. Thirty-seven percent of the youngsters participating in the ES '70 programs were from families with annual incomes below $5,000.00. The outside management - consulting firm established linkages among the participating schools, research resource groups, and federal and state agencies. Thus a viable federal - state - local partnership was established.

[1] See Appendix F , p. 63 .

2. Limitations of the Project

The study as presented for this report is limited to data collected locally in the Bloomfield Hills District. In fact, originally, with the initiation of the ES '70 Project the local Board of Education had supported a plan which limited the reorganization of the entire K-12 curriculum to only three of the schools: Lahser Senior High School, East Hills Junior High School, and Way Elementary School. Since that time two recently opened elementary schools: Lone Pine and Fox Hills have been added. In attempting to broaden the educational opportunities of all students in effecting educational change, the Board was willing to support curriculum experimentation.

This inclination on the part of the Board to cooperate in evaluating and revising the curriculum was introduced to the general staff by Dr. Robert E. Boston, Assistant Superintendent of Instruction, with his arrival on the scene in August, 1966. Paralleling the development of the "organic curriculum" for the ES '70 Project, local curriculum study groups made up of administrators and teachers have been encouraged to underwrite the materials for curriculum development based on a systems approach.

This approach utilized a method of looking at objectives, at alternatives, at inputs or that which goes into a program, at outputs or that which results or an end product, at costs, at benefits, at sequence and timing to determine which routes seem best early in a project, before serious mistakes or big commitments are made.

The structure of this curriculum for individualizing instruction formed the model[1] of a set of system objectives, the discipline objectives, terminal - performance, interim - performance and course objectives defined according to learning stages and/or subject-area courses, selections of the content vehicle, method/media trade-off, and pre- and post-test evaluation instruments. Compatibility between the local Continuous - Progress Curriculum and the "organic" curriculum was based on the common belief that the individualization of instruction is an important principle in education. To accomplish such a goal, Bloomfield Hills has assigned top priority to this sequential curriculum which encourages optimum development of the individual, capitalizing on his interests, aptitudes, and abilities within the framework of inquiry and communication skills.

In projecting the creation of the "organic" curriculum for the ES '70 Project, Bloomfield Hills has redesigned its instructional program threefold to produce the following: (1) An individualized curriculum, (2) A cadre of teachers trained in the application of behavioral technology, and (3) An in-school climate to enhance the development of the "organic" curriculum and to increase the responsiveness of the local personnel to the new and changing programs which characterize the ES '70 Project.

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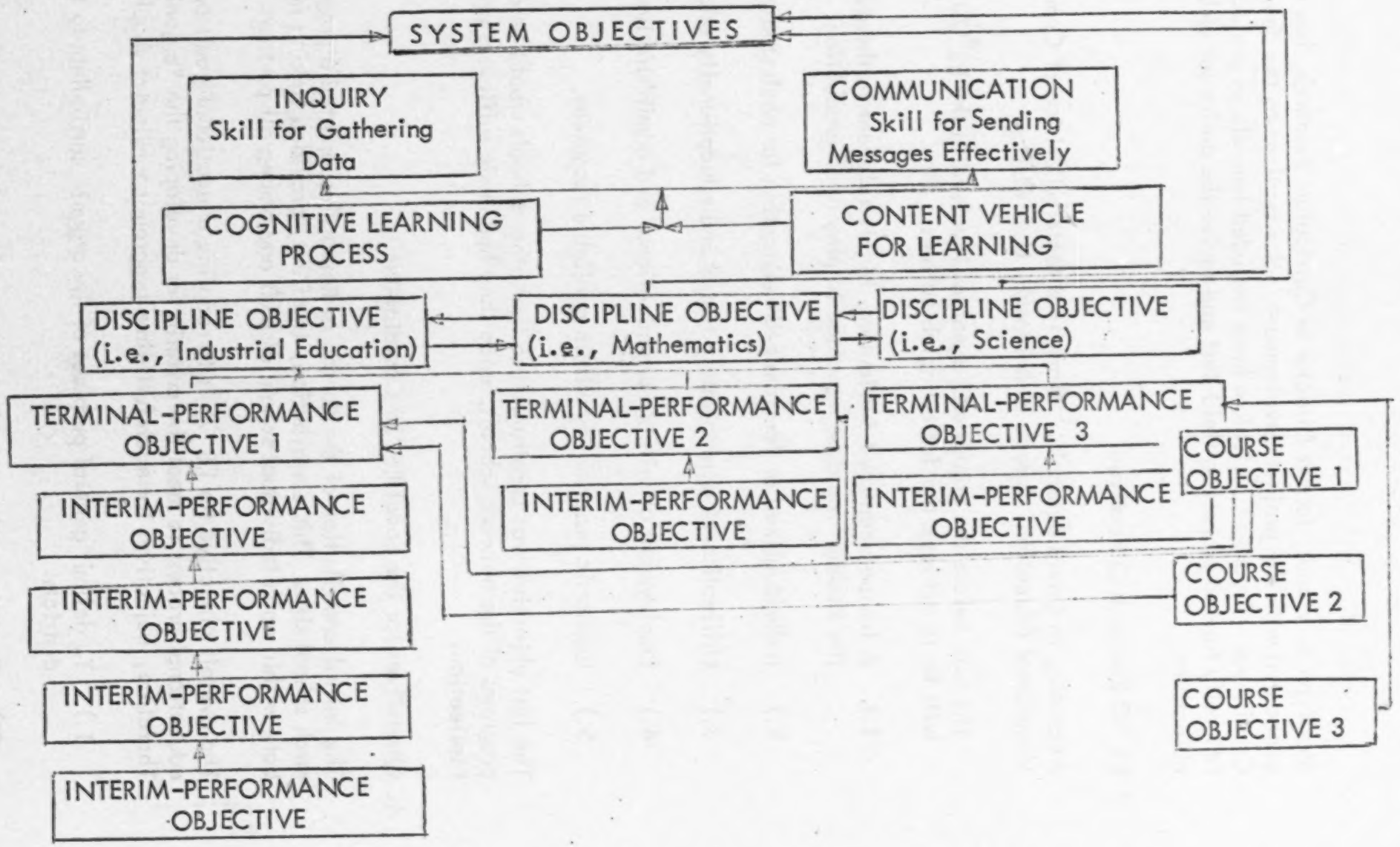
[1] See Figure 2 , p. 15 .

Figure 2

SYSTEM DESIGN FOR A STUDENT-CENTERED CURRICULUM



Marilynn S. Wendt, former Director of Curriculum Research, has also been directly connected with the project development. Her services to the development of the Continuous - Progress Curriculum have included her role as project director for a federally funded project to field-test and revise the entire set of behavioral objectives.

3. ES '70 Research Objectives

According to David Bushnell,[1] formerly director, Division of Comprehensive and Vocational Education, Bureau of Research, U.S.O.E.,

> The task before the groups and agencies involved in the ES '70 Project will be to achieve the following objectives:
>
> 1.) A learner-centered curriculum, highly relevant to the adult roles which the student would be expected to play upon graduation.
>
> 2.) Individualized or "customized" education for each student.
>
> 3.) Utilization of appropriately tested and educationally oriented technology.
>
> 4.) Employment of suitable organizational and administrative patterns.
>
> 5.) Economic practicality within available resources.

The last objective was constructed so that other schools would be able to replicate programs of the network schools, once they had made sufficient progress to warrant replication.

4. Objectives for the Local ES '70 Coordinators

The initial contribution of the Bureau of Research supported a program coordinator at each school site. This contribution, in effect, provided linking agents to operate both within each individual school district and among all partners in the enterprise.

The overall objective for ES '70 is to redefine educational goals and overhaul the educational process to meet the criteria for developing the "organic" curriculum. Therefore, objectives for each full-time program coordinator should include:

1.) To delimit general purposes of the organic curriculum to the local school districts.

2.) To utilize all available funding sources for support.

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[1]David S. Bushnell, "An Educational System for the Seventies," Phi Delta Kappan. Vol. L, December 1969, p.200.

3) To deal with a variety of complex questions which may arise from a radical remodeling of the secondary curriculum.

4) To prepare a climate for, and bring about, change in the attitudes and behavior of people so that the curriculum becomes learner centered.

5.) To develop an integrated, comprehensive curriculum, grades nine through twelve.

6.) To act as agents for communication.

7.) To evaluate each step of the program.

In order to function adequately, the Local Project Coordinator should perform the following tasks for accomplishing the above objectives:

1.) To specify and evaluate behavioral objectives for the local school district.

2.) To select and develop instructional materials and media.

3.) To become involved in training programs within and outside the local school district.

4.) To analyze the present nine through twelve curriculum.

5.) To establish relationships and communication with the community.

6.) To define the tasks and roles of community elements.

7.) To plan and try-out the program in selected schools within the district.

The confidence of Dr. Robert E. Boston as Local ES '70 Coordinator in the design of the Continuous Progress Curriculum and the "organic" curriculum to fulfill the need for individualizing student programs materialized with the authorization of additional funds for the ES '70 Project.

II. METHODS

A. CHRONOLOGY OF ORGANIZATION

1. Organizational Conference

On May 11 and 12, 1967, Eugene L. Johnson, Superintendent of Schools, and Dr. Boston met with the other representatives from the Network at Fort Lauderdale, Florida.

Guidelines from these meetings included the following:

1.) The Executive Committee of four superintendents was established and a local coordinator would be nominated by each school district.

2.) Attention was to focus on two broad goals, the integration of academic training, occupational training and personal development experience.

3.) The Bureau of Research will provide planning, systems management, and financial support.

4.) The U.S.O.E., State Departments, and local districts will cooperate in soliciting funding.

5.) A precise formulation of behavioral objectives is a prerequisite for the project.

2. Summer Institute To Prepare Local Coordinators

The fifteen local coordinators met at Kingsley Inn, Bloomfield Hills, Michigan, for an intensive eleven-day workshop from August 21 through August 31, 1967.

The general objectives of the training program were designed in keeping with the plan to develop the "organic" curriculum:

1.) To identify clearly the philosophy and goals of the ES '70 program,

2.) To interpret these goals in light of specific implications for local participating districts and general implications for education throughout the Nation, and

3.) To prepare the local coordinator for the leadership role he will be expected to fulfill as a project participant.

In addition to attaining the three general objectives, more specifically, the coordinators were expected to acquire the following administrative and communication skills by the completion of the workshop:

1.) Each coordinator should be able to plan for the local activities which are to be coordinated with the project, to interpret educational objectives in the behavioral terms required for determining whether they have been reached, and to enlist support for a specific project, including a description of the need to be met, the specific objectives of the project, the resources required, an implementation plan and the proposed method of evaluation, and

2.) Each coordinator should be able to communicate effectively to the local staff on the following terms:

a.) The objectives of the ES '70 Project,

b.) Implications for "individualizing" instruction,

c.) Interrelationships between technology and program established by the systems concept,

d.) The educational advantages and limitations of technological developments,

e.) The role of the local system in the network of participating systems,

f.) Possibilities for local use of units or modules developed elsewhere in the network, and

g.) The resources available for special projects.

3. The Curriculum Advisory Committee

The Curriculum Advisory Committee for the Division of Comprehensive and Vocational Education Research met in San Francisco on September 3 and 4, 1967. The members represented specialists from universities, state and federal agencies, and professional and lay organizations. The function of the advisory group is twofold:

1.) To review DCVER strategies for implementing the substantive elements of the ES '70 program, and

2.) To serve as a communication link with professional institutions and oranizations as feedback to those involved with educational research.

4. Elements of the Program Outline

The broad scope of activity cuts across every aspect of education. Four main categories of activity core developed in the following outline.

A.) Staff Development
1.) Professional Pre-Service

2.) Professional In-Service
3.) Non-Educational Professional Utilization
4.) Sub-Professionals

B.) Instructional Management and Career Guidance
1.) Educational Objectives
2.) Cluster Arrangements of Vocational Careers
3.) Curriculum Development
4.) Instructional Material
5.) Instructional and Learning Media
6.) Modular Scheduling
7.) Individualized Instruction
8.) Guidance Progress and Procedures
9.) Reduction of Failures

C) School Mangement
1.) Staff Utilization
2.) Information Handling
3.) Increased Efficiency in Communication
4.) Simulated Decision - Making in On-Line Situations
5.) Scheduling, Progress, and Accounting for Pupils
6.) Budgeting Fiscal Accounting, Personnel Records
7.) Modification of Existing Plant
8.) New Structures

D. Evaluation
1.) Student Assessment
2.) School Accreditation
3.) Use of Data Processing in Evaluation
4.) Student Certification
5.) General Evaluation of Educational Progress

5. Title III Grants

In 1968, small groups of the members of the Network prepared proposals for developing new learner-centered curriculum models in specified subject areas. Bloomfield Hills was involved in the group preparing programs for ESEA Title III proposals for the humanities.

6. Steering Committee

The Steering Committee for ES '70 Coordinators consists of four coordinators who design, plan and coordinate activities for operating the Network.

7. Instructional Objectives Exchange

The Center for the Study of Evaluation at the University of California has recently

established an instructional objectives exchange. The Exchange is devoted to the collection and distribution of operationally stated instructional objectives and related evaluation measures. Dr. W. James Popham and Dr. Marvin C. Alkin are Project Director and Director respectively.

8. Research Seminar

Dr. Ronald Lippitt, University of Michigan behavioral scientist, conducted a seminar on "Research Derivation and Action Planning" at the March 1969 ES '70 meeting in San Antonio, Texas.

9. ES '70 Corporation

The ES '70 Network became a corporation in March 1969. The action was taken after recommendation by the Executive Committee, which had worked out the form and details over a period of several months.

10. Board of Directors

The Board of Directors named in the articles of incorporation correspond directly to the members of the ES '70 Executive Committee. Eugene L. Johnson, Superintendent of Bloomfield Hills Schools, was one of its members.

11. Summer Training Opportunities for ES '70 Personnel

A number of special institutes were arranged for ES '70 personnel for the summer of 1969.

1.) Workshop for principals of ES '70 schools in Duluth, Minnesota, from July 21 through August 1, on the campus of St. Scholastica College. John Muldoon, Coordinator in Duluth, served as Institute Director.

2.) Conference on "Computer-Assisted Guidance Systems and Their Implication for Counseling Practice and Education" was held June 22 through 27 at Harvard University Graduate School of Education under the leadership of Dr. David Tiedeman and Dr. Rhoda Baruch.

3.) An institute in the "Teaching of Secondary Reading" was held at Capuchino High School, San Mateo, California.

4.) A workshop institute for curriculum leaders was held in Willingboro, New Jersey.

12. Support from U.S.O.E. Being Phased Out

Dr. Robert E. Pruitt, Acting Director, Division of Comprehensive and Vocational Education Research stated, "It was therefore agreed that the management-assistance

contract with E. F. Shelley and Company, Inc., would be gradually phased out and terminated at the expiration of the present contract period in November of 1969. The coordinators and coordinators' travel have been funded through June of 1970, at which time that funding will be terminated.

13. Fall Workshops

The coordinators held a two-day workshop on October 27 and 28, 1969 in Quincy, Massachusetts.

The ES '70 principals group met in Quincy at the same time. Their workshop attacked the following technique and skill areas: involving students in the decision-making process, writing objectives in behavioral terms, individualizing instruction, and using group-dynamics techniques.

14. National Laboratory for the Advancement of Education

"Bridging the Gap between Learning and Earning" was the theme of the second annual National Laboratory for the Advancement of Education held in Washington, D.C., January 26 through 28. Sponsored by the Aerospace Education Foundation and the U.S. Office of Education, the Laboratory analyzed, evaluated, and demonstrated the role of vocational, technical, and academic education in preparing today's youth for more productive participation in a modern dynamic society.

15. ES '70 Accountability Workshop

Dr. Leon Lessinger, Calloway Professor, Georgia State University, keynoted a special meeting on January 29, 1970, offering the concept of accountability as one solution to the mortal crisis in public education. Upon completion of Dr. Lessinger's remarks, the participants met in separate subgroups to consider the varied components of educational engineering.

B. CHRONOLOGY OF BLOOMFIELD HILLS OPERATIONAL PROCEDURES

During the spring of 1969 Dr. Boston developed charts entitled "Nineteen Sixty-Nine and Nineteen Seventy Schedule of Design, Plans, and Operational Phases for Developing and Demonstrating a Fully Individualized K-12 Curriculum."[1] The procedures and methods described in this section of the report complements the areas of these charts wherever the projects are operational.

1. Kingsley Inn Workshop Directives (Summer 1967): -- The initial directives for launching ES '70 in Bloomfield Hills evolved from the Kingsley Inn Workshop. By

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[1]Appendix G , p. 71 .

unanimous consent of the workshop participants, it was agreed that the local project coordinators be given a direct line of communication to their superintendents and that they be integral to the decision-making processes of the local district. They substantiated this agreement with the following list of responsibilities:

1.) Orient local boards of education and administration,

2.) Determine financial commitment,

3.) Develop ES '70 Program

- a.) Survey outside - funding sources,
- b.) Survey local college and university resources,
- c.) Survey surrounding districts,
- d.) Make local evaluation of district characteristics,
- e.) Analyze local programs,
- f.) Analyze local staff,
- g.) Orient local staff,
- h.) Contact and develop working relationships with regional research and development laboratories and supplementary resource centers,
- i.) Contact State Education agencies
- j.) Contact community - resource groups, such as local business, industry, or PTO,
- k.) Contact local communication media.

4.) Phase out initial local and network activities

- a.) Secure findings for selected program(s),
- b.) Test selected local projects,
- c.) Reformulate instructional program,
- d.) Implement local communications network
  - (1) Train teachers,
  - (2) Plan student counselling,
  - (3) Plan facilities,
  - (4) Plan module evaluation,
  - (5) Design instructional modules,
  - (6) Plan method/media mix.

5) Maintain communication with the ES '70 Network and the U.S.O.E. through the E.F. Shelly Company.

2. Installation of the Continuous-Progress Curriculum (Winter 1967-1968): -- With the opening of school in September 1967, Dr. Boston, Local ES '70 Coordinator, installed an experimental curriculum, K-12, in the ES '70 high school, Lahser Senior High School, and two other schools: East Hills Junior High and Way Elementary. The success in implementing this curriculum would serve to develop the "organic" curriculum because the two designs are compatible in all of their elements.

These curricula are based on the firm belief that each individual possesses unique abilities, aptitudes, and interests which should be capitalized upon and developed to the optimum according to his potential by the educational programs in the experimental schools.

3. Scope and sequence of the experimental program: -- During sixty percent of the student's time he is involved in an individualized program, with expectations of quality work based on progress at his own pace and at a level which pairs instruction with his achievement. Progress is measured as the difference between the respective scores on pretests and post-tests which relate to the specifications of behavioral objectives. Methods take into consideration the System Objectives, a broad overall framework of skills emphasizing the skills of communication an inquiry. To fortify the communication and inquiry skills of the System Objectives the Discipline Objectives have been formulated to present the cognitive hierarchy in a sequence for cross-referencing objectives among the subject-matter disciplines. For each of the disciplines the Terminal-Performance Objectives specify the end results the learner is expected to attain in each subject area with the subordinate Interim - Performance Objectives to describe the sequential steps through which the learner will progress to attain each Terminal - Performance Objective.

   The procedures for the remaining forty percent of the student's time are devoted to activities which provide for group interaction and for the individual teacher to share his strengths with his students in supplementary and/or enrichment activities, such as games and the kinds of things that make learning a pleasant and exciting experience.

4. Approval of Federal Contract relating to behavioral objectives (Summer 1968): -- The activities resulting from the procedures planned for this period were greatly influenced by support from the U.S.O.E. Bureau of Research to evaluate and revise the behavioral objectives for the ES '70 high school. The results of the study were to contribute significant data as evidence of the sound educational theory embedded in the design of the "organic" curriculum.

5. Summer Workshop: -- Dr. Boston devised a program for fulfilling the objectives of the research study. He appointed Marilynn Wendt as Project Director and together they planned the instructional materials for implementing the workshop design.

   A six-week workshop was planned to begin on June 27. The procedures were to include review, revision, and classification of the performance objectives available by staff members representative of all disciplines in the experimental schools. They would then construct new objectives if needed or replace any which should be discarded. To achieve these goals, as many staff members as possible with the amount of money available would participate in the workshop. Forms were planned to give the participants general information, an objective evaluation sheet, classification for content, evaluation, methods, materials, and a grid for listing the revisions of objectives.[1]

[1]Appendix A,C,D,E , p. 50, 55, 57, 60.

6. Critique of experimental curriculum (Fall 1968): -- With the completion of the initial phase of the federally supported research project, plans had been completed for the continuation phase for the proposal. The data collected for the project served as a basic for program evaluation.

   Methods for evaluation of the Continuous-Progress Curriculum included the following:

   1.) To examine the behavioral objectives affected by the work of the Summer Workshop participants,

   2.) To provide validation of the objectives at the secondary level by field-testing them at Lahser High School and East Hills Junior High School,

   3.) To have the first phase of the program critiqued by consultants with specialties in subject-matter disciplines, general secondary education, and the field of the behavioral sciences,

   4.) To assess the design of the curriculum in relation to the data toward evaluation available from the Summer Workshop, the reactions of the consultants who evaluated the project, and the relevance of the criteria constructed to evaluate the design,

   5.) To bring to the local community the story of the first year of the project -- the reflection of the curriculum design in individual programs and the assessment and revision of its performance objectives -- through the parent/teacher organization, teacher/parent conferences, and orientation meetings.

7. Second year for operating the experimental curriculum to individualize instruction (Winter 1968-1969): --

   Taking into consideration the results from the evaluative data, the plans for the second year were designed for the purpose of eliminating or modifying less productive components and of developing the effective areas of the program.

   In addition, procedures were accepted which put greater emphasis on coding commercial materials for developing learning strategies thus lightening the teacher's responsibilities for constructing self-instructional materials.

   The successful operation of the continuous-progress curriculum led to a reaffirmation on the part of the Local ES '70 coordinator to carry out the directives of the ES '70 Project to develop the "organic" curriculum locally and to disseminate the results from the local efforts to the other members of the Network and any interested educational institutions or agencies.

8. Progress in developing project to construct a model set of behavioral objectives (Spring 1969): -- Through finalizing the hierarchy of performance objectives, it was planned to establish the Continuous-Progress Curriculum in the project schools by field testing and gathering data as well as by means of Quality-Control Checks, interviewing, departmental and administrative conferences, and surveys. It would then be possible to restructure the learning process by providing a basis upon which to build more-and-more flexible programs, such as:

   1) Validating the behavioral objectives for instruction K-12, and

   2) Demonstrating the facets of the design as they are operational in classroom instruction.

   The Board of Education requested a plan for evaluating the Bloomfield Hills Schools. Dr. Jacobson, in chairing a districtwide committee, was to arrange for additional testing, if necessary, and to design a statistical plan for measurement.

   The Local Coordinator planned a senior high school humanities course based on man's expressions. The design integrated social studies content with communication and inquiry skills interspersed with studies from other disciplines, such as music, art, and architecture.

9. In-Service training and study groups to proceed with curriculum construction (Summer 1969): -- This period denotes the completion of plans for operating a large summer workshop to fulfill the conditions required for analyzing objectives in the contract for the Federal Research Project. In order to measure the growth and development of the student-centered curriculum and to revise the behavioral objectives for individualizing instruction, two major programs were structured:

   1) Evaluation of the Continuous-Progress Curriculum for the 1968-1969 school year, and

   2) Evaluation of the behavioral objectives based on the assessment of the present objectives, on the inventory of published resource materials, and on evidence of validity which appears as a result of field-testing in the classrooms.

   Ideas were put into motion for achieving a plan for a computer-managed information system in Bloomfield Hills. It was decided to work with the data-processing people at Oakland Intermediate School District. Advice was also sought from members of the Curriculum, Research, and Data-Processing departments of the Michigan State Department of Education.

10. Completion of Phase II of the research project to revise objectives (Fall 1969): -- The results of the Spring and Summer workshops were assessed in order to field-test

the objectives in the classrooms during the 1969-1970 school year. In addition at the conclusion of the workshops certain plans were made to measure what had been accomplished. To attain the objectives, materials were developed for training leaders and staff participants to analyze their tasks for determining behavioral objectives as they related to education and were reflected in the curriculum design. Activities to be undertaken were to accomplish the requirements of the following objectives:

1.) To assess the performance objectives in toto and their separate components in order to assure the uniformity of style and structure described by the established criteria,

2.) To collect data for assessing the design of the accepted behavioral objectives in order to classify them for building learning interventions,

3.) To continue with the preparation of an inventory of commercially developed resource materials available within the local school district which apply to the essential skills and related content, and

4.) To continue constructing the list encoding these materials within the performance framework of the objectives.

11. Development, Dispersion, and Dissemination (School Year 1969-1970): -- Activities for this period were to be developmental in nature. Services to the personnel involved in the experimental curriculum were to receive special attention:

1.) One of the most important tools for analyzing the goals of a classroom is the method of "Task Analysis." Subscription to the method of Task Analysis was expected of the administrators, supervisors and teachers. During the school year the application of task-analysis techniques were extended into the classroom.

2.) In addition to the study of the curriculum design as it relates to the viability of the taxonomy, there was to be a continuing effort to produce materials planned for each level of the taxonomy and for different instructional levels to accommodate learning differences among students.

3.) Another tool, but one meriting a great deal of interest at that time was the development of a decision-making model; such a model was alluded to during the Kingsley Inn Workshop in August 1967.

The Education Improvement center agreed to sponsor and support an intensive three-day conference for educators and key persons at the decision-making level at Cherry Hill, New Jersey. The workshop was designed to present the state-of-the-art for individualizing instruction. The objectives to be attained at the conference were established as follows:

1.) To identify clearly the philosophy and objectives for individualizing instruction in elementary and secondary schools,

2.) To interpret the philosophy in light of articulation for education throughout the State,

3.) To present information concerning the applications of computers to education and for incorporating computer management in the design of the system, and

4.) To describe the Bloomfield Hills, Michigan program to individualize instruction as a part of the ES '70 Project for the United States Office of Education.

12. Phasing-out period for the U.S.O.E. Bureau of Research financial support (Spring and Summer 1970): --

In completing the third year of operation, the hallmark of this skill-oriented curriculum was soon to be enhanced by means of the following:

1.) To relate Outdoor Education as part of the environment of the Continuous-Progress Curriculum to the ES '70 Project,

2.) To study student rate for a terminal task in concept learning as it relates to the sequencing of instruction,

3.) To critique and promote in detail the administrative and curricular programs in the ES '70 school, Lahser High School.

Dr. Boston will assume a more comprehensive role as assistant superintendent when the administrative functions are modified in order to reorganize the operation of the local district. With this view of the future in mind more attention will be directed to spreading components of the Continuous-Progress Curriculum to the non-project schools.

III. FINDINGS AND ANALYSIS

A. RESULTS

1. January 1968 - April 1968

A curriculum for individualizing instruction was operational, K - 12, in all courses based on a system of monitoring achievements with growth, the differences between post-and pre-test scores, as measured by the requisites of behavioral objectives.

Areas of industrial arts and business are integrated with mathematics, science, and music with the cross-indexing of performance objectives across subject-matter lines.

Lahser High School, the ES'70 School, was selected and participated in the exams for exploring the type of instruments and setting for testing for National Assessment.

The local continuous-progress schools participated in a project at Stanford University which was studying flexibility for vocational education through computer scheduling.

Dr. Boston met with State ESEA Title III consultants and Dr. Ward, Michigan State University. He in turn, participated in a workshop, Innovation '68, in conferences for staff at Omaha, Nebraska, and in a U S Office of Education workshop at New Orleans, Louisiana.

2. April 1968 - July 1968

The ES'70 Project was the recipient of a contract of support for the following proposal, "A Study To Design, Develop, Implement, Evaluate, and Revise Specific, Measurable Performance Objectives To Serve as a Model To Individualize Instruction for Secondary Schools No. OEC-0-8-080653-4582- (010) ." The efforts were directed toward the cross-indexing of behavioral objectives, the clustering of skills, providing a format for objectives in each discipline, Discipline Objectives, which create a hierarchy of common skills to accommodate the Course Objectives.

Dr. Charles Keller lectured and led the discussion groups in a two-day symposium pertaining to such topics as motivation, the role of the outstanding teacher, and the importance of the humanities in the ES'70 curriculum.

Tabulations of the Quality- Control Checks indicated that instruction in June was ahead of the total plan for complete individualization K-12 in all discipline areas. A first for the non-project schools was the introduction of the individualized mathematics program at the sixth grade level in the four traditional elementary schools which feed students into the project junior high school.

Ten members of the Michigan State Department of Education visited the project schools and participated in a seminar with staff and supervisory personnel.

Dr. Boston conferred with researchers on the taxonomy of the cognitive processes as it is related to the construction and classification of behavioral objectives during a workshop at the Rocky Mountain Education Laboratory.

3. July 1968 - October 1968

The three project schools -- Way Elementary, East Hills Junior High, and Lahser Senior High School -- were opened in September with all classrooms following the design patterns of the continuous - progress curriculum. The opportunity to revise objectives, code off-the-shelf materials, develop curriculum, and write student and teacher instructional materials encouraged and stimulated the teachers in the project schools.

The District completed the initial phase of the research study to evaluate and revise the behavioral objectives for the Continuous-Progress Curriculum. Results of Phase I included the following for each discipline:

1.) The final draft of each objective for every course,

2.) Each course objective coded to the discipline objective,

3.) Time estimates in terms of class periods stated for each objective, and

4.) Number of objectives an individual student must complete to receive course credit.

Dr. Boston, personally, wrote the curriculum materials for speech courses and a creative-writing course at the senior-high-school level.

Undoubtedly, the most outstanding event during this period was the Coordinators' Conference for the ES'70 Network. An overview of the new curriculum was presented with the changes indicated in the behavioral specifications of the model effected since the summer of 1967. Groups then visited classes in the three project schools, visited with students, consulted with teachers, and planned to meet with administrators to discuss topics peculiar to their own interests and needs. These conferences were also favored with a visit from Dr. Sidney High and David Bushnell of the Office of Education.

Dr. Boston served as a consultant to an in-service workshop at Idaho Springs, Colorado.

4. October, 1968 - January, 1969

In the three project schools curriculum construction by Task Analysis progressed as planned following the tenets of the curriculum design.

Bloomfield Hills was given the use of microfilms from the University of Michigan. They were indexed and coded to serve as content in building learning strategies.

Dr. Boston constructed a course for the American Cultures program in the humanities at the senior-high-school level. To provide a learning packet attractive to our "mod" generation, the media were presented in a newspaper format, entitled The Establishment.

Representatives from the Medical School of Wayne State University have been consulting with Dr. Boston for some time with an end in view of adopting the Bloomfield Hills curriculum design to their instructional situation.

During the first year of the project, teachers have been serviced in many ways. The following are examples of ways this has been accomplished:

1.) Regular conferences are held between Dr. Boston and the teachers, individually;

2.) There are departmental conferences with at least one administrator in attendance;

3.) System Coordinators for the subject-matter field, such as mathematics, science, reading, and the humanities, serve teachers in a consultant capacity.

Dr. Boston visited Western Michigan University to discuss cooperative planning leading to innovative programs for teacher training in higher education.

The local school district became more closely allied with the other districts of the Network with the selection of Eugene L. Johnson, Superintendent of Schools, to membership on the ES'70 Executive Committee.

5. January 1969 - April 1969

The final group of objectives written were the Course Objectives. These are behavioral objectives constructed cooperatively by teachers to fulfill the needs, performancewise, for separate courses and/or other needs which have been identified individually. They reflect the required behaviors as they are achieved by content, methods, and media unique, or perhaps more accurately, relevant to particular subject-matter disciplines. The Course Objectives for Lahser High School, the ES'70 School, were compiled to comply with the requirements of the North Central Association of Schools and Colleges.

March in-service meetings were devoted to a group of conferences combining the staffs of the project and traditional schools to discuss and explain the new curriculum as it is being implemented in the three schools.

The humanities classes of Lahser High School visited the Martin Luther King High School in the Inner City of Detroit.

6. April 1969 - July 1969

The Spring Workshop was conducted with curriculum study groups, made up of teachers, coordinators and supervisors, meeting in small subject-area and subgroups during the normal school day. As a result of the workshop, the number of objectives was tabulated for each of the disciplines. The greatest number completed was in the Art Department with higher cognitive processes receiving greatest attention in the Spanish courses. The Systems Objectives were reviewed with the sequence and articulation checked between subordinate levels. The Discipline Objectives were revised as needed to fit the design.

The Board of Education requested additional testing during the spring to compare the continuous-progress with the traditional schools. In forming generalizations from the results of Iowa achievement tests, it was recognized that many educational values are not reflected in the scores of these tests. The results did not indicate significant differences in achievement between the two types of schools.

Dr. Boston served as a consultant to the Lincoln, Nebraska School System. Dr. Jack Bratten and Kenneth Barrabee of Systems Development Corporation and Dr. Henry Walbesser, University of Maryland, visited Lahser High School as consultants to critique the Project to revise behavioral objectives.

Dr. Boston participated in a workshop at Albany, New York, as requested by Dr. Alan Robertson.

Dr. Boston was requested by the Michigan State Department of Education to participate in Hearings for the Governor's Commission on Educational Reform. The Bloomfield Hills' position was presented on the topic, "The Present Need for Technology in Education."

7. July 1969 - October 1969

During these months the continuous-program moved closer to desired classroom implementation. This transition from a stated philosophy to classroom implementation is, too often, never realized. It is in relationship to the efforts to achieve such a transition that the following have been accomplished:

1.) Operation of the Continuous-Progress Curriculum in the original three experimental schools and two additional newly opened elementary schools, Fox Hills and Lone Pine, and

2.) Evaluation of the behavioral objectives for all disciplines, K-12, based on the assessment of the objectives with reference to prescribed criteria including coded off-the-shelf and locally constructed materials.

With the selection of an East Hills administrator to fill the position of Principal at Bloomfield Hills Junior High School and a Lahser teacher as Assistant Principal at East Hills, the position of continuous progress in the District was strengthened. In contrast, the appointment of Dr. Bert Pack was confirmed with Dr. Pack coming from Systems

Development Corporation. Meetings were held with Bloomfield Hills Junior High staff members in relation to introducing parts of the program for individualizing instruction. Science, mathematics, and humanities appeared to be the first group of courses to move in this direction.

A Curriculum Council was organized to study areas of educational importance and significance. The Council members were interested teachers, supervisors, and administrators. Two subgroups have been formed: (1) Conference Guide Study Group, and (2) In-Service Groups for the Non-Project Schools.

After the training sessions for the Summer Workshop, the balance of the scheduled workshop time was spent in small subgroups or by individuals to produce results in the following areas:

1.) Revised behavioral objectives,

2.) Behavioral objectives for new courses,

3.) Newly constructed behavioral objectives to fill gaps and to complete courses,

4.) Lists of appropriate instructional materials coded to behavioral objectives,

5.) Curriculum guides containing essential instructional information for teachers,

6.) Self-Instructional materials for students, and

7.) Field-Test results.

Among the major accomplishments of Phase II, the following were included:

1.) Behavioral objectives were revised, objectives were constructed for new courses, and additional objectives were designed to fill gaps and to complete courses,

2.) Course objectives for the five levels of the cognitive processes were categorized,

3.) The Course Objectives were tabulated by design classification of the Discipline Objectives,

4.) The Discipline Objectives were reviewed in each subject-matter area,

5.) Terminal-Performance Objectives were developed, revised, and reorganized in light of the Discipline Objectives,

6.) Interim-Performance Objectives were developed and revised to fit the Terminal-Performance Objectives, if necessary,

7) Each interim - and terminal - performance objective was evaluated, after analyzing individual student-progress charts from the 1968-69 school year, in the following terms:

a) Minimum performance standards,
b) Time limits defined for each objective,
c) Clarity of specifications, and
d) Prerequisite skills necessary.

The Board of Education met the first Tuesday of each month for Dr. Boston to report on curriculum, counselling, testing, special education, and other items instructional in nature. These presentations promoted communication, coordination, and feedback with regard to the continuous-progress schools.

8. October 1969 - January 1970

Recently a decision-making model has merited a great deal of interest. Such a model expected that the Coordinators would have acquired the following skills:

1) Administrative skills

a.) To plan local activities coordinated with the project,

b.) To interpret educational objectives in behavioral terms,

c.) To develop information required to enlist support for a specific project.

2) Communication skills

a) The objectives of ES'70,

b) The implications of individualization of instruction,

c) The inter-relation between technology and program (systems concepts),

d) The educational advantages and limitations of technological developments,

e) The role of the local system in the Network,

f.) The transmittal of instructional modules developed elsewhere in the Network,

g) The resources available for special projects.

Dr. Edward Bantel, Oakland University, conducted three seminars for the Bloomfield Hills School District:

1.) Classroom Ecology,

2) Man and Environment: Ecological Problems in Education,

3) Ecological Problems Related to Educational Psychology.

9. January 1970 - April 1970

An activity significant in terms of validating a specific content sequence for course objectives was a research project, entitled A Study of the Acquisition Time for a Terminal Task in Concept Learning Comparing the Effects of Empirically Tested and Fixed-Reorder Instructional Materials. The findings from this study have important implications for supporting order of presentation, the sequence of instruction, as a predictor for student achievement. The results support the hypothesis that achievement depends more on subordinate learnings of ordered tasks than on level of reading achievement as the learner proceeds upward in a program hierarchy.

The Cherry Hill Workshop presented nationally known speakers. To establish a frame of reference, the participants were alerted to the needs of education. One problem to solve is to find a solution for improving the educational product. If educators have performance specifications for measurement, then the better the objectives and criterion checks, the better the evaluation.

The educators were challenged to give answers to the following questions in their quest for building the Educational System for the Seventies:

1) How powerful can the system be?

2) How much can we reckon with learning style?

3) How can we use the potential of the computer?

4) How can we utilize human and non-human resources?

To accomplish what will have to be done, education in this society must train boys and girls individually to be accountable and to demonstrate empathy, an education for trust.

10. April 1970 - July 1970

Lahser High School, the ES'70 School, was accredited by the North Central Association of Schools and Colleges. In the Evaluation Guide the Administration discussed its Recommendations. It was stated that a sincere attempt had been made to provide behavioral settings including resource centers, seminar rooms, research personnel departments, and research application laboratories. The Recommendations were predicated on the following philosophical elements:

1.) To encourage in each student the development and use of creative thought and the ability to reason, and

2.) To encourage excellence and develop in each student the desire for high achievement and the personal satisfaction of intellectual pursuits.

The junior high humanities program was studied and revised. For the eighth and ninth grades a unit of study was completed with teacher guides and student materials which focussed on the Value theme. For the seventh grade an evaluation was made of the Overview and Democratic Process of Law instructional units. A study had been made to consider the higher level processes, i.e., constructing a hypothesis and building a model for the Power Theme and the Value Theme.

The Course Objectives derived from the Terminal-Performance Objectives were revised for Algebra I.

Dr. Boston defined Outdoor Education in terms of the Continuous-Progress Curriculum, wrote the philosophy for Outdoor Education, and constructed its educational objectives based on this definition and philosophy.

It is fitting to terminate this description of methods, procedures, and activities with the creation of the Curriculum Council in the Bloomfield Hills Schools. The Council is made up of interested teachers, supervisors, and administrators who volunteer their services for curriculum development. The Council as a whole functions by means of smaller sub-committees. The Program Evaluation Sub-Committee is devising a measuring instrument commensurate with the purposes of the continuous-progress program. The Standardized Test Sub-Committee has undertaken the task of analyzing standardized-test items. Item analyses have been completed for "Iowa Tests of Basic Skills." "Stanford Achievement Tests," Lorge-Thorndike tests and the State Assessment achievement battery of basic skills.

Other committees have been working within the schools. The members of the In-Service Sub-Committee conduct in-service workshops using tape/slide and video-tape programs concerning the project schools which the committee have prepared locally. The Permanent-Records Committee studies what kinds of records are needed, how they can be kept most efficiently, and how long various types of data should remain in the child's permanent record. The Writing Materials and Objectives Committee have been examining objectives for validity. The Conference Committee has completed report cards for four different levels and, at present, is working to establish criteria for each of the categories on the independent learner profile.

Dr. Boston served as a Forum Leader for the Aero-Space Conference in Washington. It was his responsibility to chair a section on Teacher Training.

B. ANALYSIS

Standardized-Test results are one measure of student achievement. To obtain such results, The Iowa Tests of Basic Skills and The Iowa Test of Education Development were used to compare student achievement in the project schools with student achievement in the traditional schools. Dr. Rodney Roth, Systematic Studies Specialist of the Oakland County Intermediate School District, prepared the statistical report.

Comparison of the Continuous-Progress Curriculum with the Traditional Curriculum Based on the Results of Iowa Achievement Tests from Selected Groups of Students

To obtain test scores for comparison, two groups of elementary students were selected. Students were selected for the control group who were enrolled in the fifth or sixth grade at Vaughan School and had been attending Vaughan for a minimum of three years. Students were selected for the experimental group who were enrolled in the fifth or sixth grade at Way School, had been attending Way for two years and had previously been enrolled in Vaughan School for the minimum of one year.

In short then, the scores given for purposes of comparison are test results from two groups with characteristics as follows:

1.) Students in the two groups had had one year of common experiences in Vaughan School;

2.) It was necessary for these students to be in the School District for three consecutive school years;

3.) The number of students who meet the criteria above for selecting the student sample is rather small:

4.) As measured by tests administered in the fall of the year, the experimental group of students had participated in the new curriculum for one year; during the same length of time the control group remained in the original school, Vaughan School.

5.) Each child was compared only with himself, thus eliminating the necessity of matching variables, such as intelligence, etc.

The tables show a standard score. It is the average for each group based upon the standard average of 50.0. The standard scores were computed and compared by Dr. Rodney Roth of the Oakland County Intermediate School District.

The method accepted for comparison of junior-high achievement was similar, in essence, to the method for the elementary schools. From the Iowa Tests of Basic Skills given to ninth-grade students on April 28 and 29 1969, the sample of test results was selected for those students who had attended the same junior high school for their seventh grade work. Dr. Roth compared the ninth-grade scores while taking into consideration differences among the groups when the students were tested at the seventh-grade level.

The next table describes these data. The test results are displayed in Standard T-Scores, based on a standard score of 50 for the average. The standard scores were computed and prepared for comparison by Dr. Rodney Roth of the Oakland County Intermediate School District.

Twelfth-Grade students at Andover and Lahser were also tested on April 28 and 29. They were given the Iowa Test of Educational Development. For comparison purposes the sample of test results was selected for those who had attended Andover High School in the Tenth Grade.

These students were divided into two groups. Students were selected for the control group who were enrolled in the Twelfth Grade at Andover High and had been attending this school for three years. Students were selected for the experimental group who were enrolled in the Twelfth Grade at Lahser High, had been attending this high school for two years and had previously been enrolled at Andover High School for their tenth-grade work.

Thus, the scores given for purposes of comparisons are test results from two groups with characteristics as follows:

1.) Students in the two groups had had one year of common experiences at Andover High School;

2.) The students had been in the School District for a minimum of three consecutive school years;

3.) There were 198 students from Andover High School and 151 students from Lahser High School;

4.) The twelfth-grade students from Lahser High had participated in the new curriculum for individualizing instruction for two school years; during the same length of time the control group remained at Andover High School;

5.) Each student was compared only with himself, thereby eliminating the necessity of matching variables, such as intelligence, etc.

The table following describes these data. The test results are displayed in Standard T-Scores, based on a standard score of 50 for the average. The standard scores were computed and prepared for comparison by Dr. Rodney Roth of the Oakland County Intermediate School District.

Based on the results of these samples, the findings indicate that there are no meaningful differences between the traditional and continuous-progress schools at the elementary and senior-high-school levels. At the junior-high-school level the data demonstrated meaningful differences for two subtests, Reading and Language, and no meaningful differences for the other three subtests. However, in consideration of East Hills as the experimental school, the acievement of its 152 ninth-grade students compares well with the 73 ninth-grade students at West Hills in both these subtests. The meaningful differences occur between Bloomfield Hills Junior High and both East Hills, the project school, and West Hills, another non-project school.

IV. CONCLUSIONS AND RECOMMENDATIONS

A. CONCLUSIONS

1. Expressed Interest in the Bloomfield Hills Continuous-Progress Curriculum

There must be a firm belief that the local Continuous-Progress Curriculum and/or the "Organic" Curriculum will have an effective impact on education if the following persons, as examples, have been willing to give priority to visits to the Bloomfield Hills experimental schools:

Dr. Robert Morgan and Dr. Jack Morgan, U.S. Office of Education,

Dr. Robert Trezise and John R. Rothermel, State Department of Education,

Dr. Stuart Rankin and George Grimes, Michigan-Ohio Regional Educational Laboratory,

Dr. Robert Branson and Dr. Baker of Litton Industries,

William Puryear, U.S. Army Logistics Management Center, Fort Lee, Virginia,

Walter Mylecraine, Dr. Thomas Clary, and William Gomberg, Office of Construction Services of the Department of Health, Education, and Welfare,

John Rosser, ES '70 Coordinator, and members from the Willingboro, New Jersey, Public Schools,

Troy Nuckles, San Mateo, California,

The Honorable Jack Faxon, Representative in Michigan Legislature,

Peter Weaver, Forbes Publications,

Dr. Eugene Staley, International Division of the Ford Foundation in South and Southeast Asia,

The ES '70 Steering Committee of Willingboro composed of the High-School Principal, two Junior-High Principals, the Elementary-Curriculum Coordinator, two High-School Department Chairmen, the ES '70 Coordinator and his Assistant were sent to Bloomfield Hills to study the K-12 continuous-progress program.

Serge Duckworth, Dade County School District, Florida,

Dr. Hartole, University of Wisconsin,

Dr. Lee Brown and William T. Marsden, Xerox Corporation,

James Jones, Director of Curriculum, and five members of his staff visited Bloomfield Hills to arrange for consulting services,

Dr. Anderson, Dr. Messick, Dr. Trismen, and Dr. Ball visited to discuss the plans of Educational Testing Service. The discussions centered around evaluation, in general, and the ramifications for testing achievement based on cognitive skills higher than the knowledge process, in particular.

Members of the Education Department of the State of New York visited the project schools for two days; they were:

Dr. Bernard Hooke, Assistant Commissioner for Instructional Services,
Dr. Alan Robertson, Director, Division of Evaluation,
Joseph Oakey, Principal, Niskayuna High School,
Dr. John Stiglmeier, Director, Information Center on Education,
Gordon E. Vanhooff, Chief, Bureau of Secondary Curriculum Development.

Dr. Higgins Bailey, Superintendent of Emery, California, School District,

Dr. Boston entertained Joseph L. Hojak and Kenneth Adams of the Pennsylvania State Department of Instruction and consulted with them for two days on the subject of individualizing instruction.

Dwight Osborne, Principal in Cheyenne, Wyoming,

Dr. Phillip Kapfer, Las Vegas, Nevada,

Dr. Robert Rubeck, Batelle Institute, Columbus, Ohio,

Dr. John Adams, Chairman of the National Commission for the Humanities,

Sister NobuckoMorimura, an administrator from Tokyo, Japan,

A highlight of this spring in developing the "organic" curriculum was the visit of Dr. Sue Brett, Research Associate for the Instructional Materials and Practices Branch of the Bureau of Research, U.S. Office of Education. She spent two days in the classrooms of Lahser Senior High, the Bloomfield Hills ES '70 School. She had the opportunity to observe classes in action, talk with administrators, teachers, and students, and to discuss with Dr. Boston and other members of the staff concerns arising from the operational phase of the Continuous-Progress Curriculum.

The Archdiocese of Chicago sent Sister Eleanor and one other representative from the Loretto School, Father Ashley Harrington and one other person from Mount Carmel, and Genie Pedersen, ES '70 Coordinator, to Bloomfield Hills to study the design for continuous progress and some logistics for implementing the design in the classroom environment.

2. Accomplishments in Attaining Research Objectives

Fortunately, the Bloomfield Hills Board of Education efforts to establish a K-12 curriculum for individualizing instruction predated the ES '70 Project. Thus, in spite of limited funding the District was able to attain the objectives to the extent described below.

a. Curriculum objectives: --

(1.) A learner-centered curriculum, highly relevant to the adult roles which the student would be expected to play upon graduation.

The curriculum is a dramatic reconstruction of a K-12 educational program. The learning program is skill oriented. Students are required to progress through sequentially ordered series of interim-performance and terminal-performance objectives. The skill oriented objectives are tied to the selected subject-matter content by means of course objectives. Students advance to a higher-level skill objective if they have the necessary prerequisite skills and have fulfilled at least the minimum requisites of the previous objective. As a result in leaving school, the student will have mastered functional skills for inquiry and communication to the level of sophistication possible in relation to his intelligence, physical growth, and maturity.

Subject-area objectives are woven into the broader framework of inquiry and communication skills. These are the System Objectives and serve as the basic framework for the entire curriculum. Within this framework inquiry pertains to skills for seeking and obtaining information and knowledge, and communication for those transmitting the results of this inquiry to others. In short, instead of emphasizing only subject-matter content, one concentrates on developing the cognitive skills. It is this emphasis on skill-acquisition that enables a student to pursue a life-long interest in learning.

(2.) Individualized or "customized" education for each student.

The Curriculum was designed to individualize instruction by means of a set of realistic behavioral objectives. These objectives cut across subject matter and grade lines to establish a two-dimensional matrix with content areas on the vertical axis. They are arranged sequentially from easy to difficult tasks. Various methods are utilized for individualizing instruction including independent study under the supervision of a teacher. A multi-media trade-off will be effected for each student individually not only by differentiated methods but with teams of teachers and a variety of instructional materials as well.

(3.) Utilization of appropriately tested and educationally oriented technology.

Although the Detroit Area is abundant in resources for data-processing and other technological services, the Bloomfield Hills School System has grown from such a small district to its present status so rapidly that computer management was far down the priority list. Understandably, however, with the advent of a new superintendent who is systems oriented, plans are moving ahead rapidly to incorporate data-processing

services in the operation of the educational programs.

(4.) Employment of suitable organizational and administrative patterns

The experimental curriculum has been operational, K-12, in five Bloomfield Hills schools since September 1967. The curriculum model is based on the interpretation of a systems approach to learning occurring within an acceptable hierarchy of cognitive skills. To fit the format of the system, learning is defined as the modification of behavior measured by the specifications of achievement required by a performance objective. Achievement is measured by the differences between post-test and pretest scores. The "Conceptual Model for Individualizing Instruction" (Figure 2) represents graphically the interrelationships among the parts and between the parts and the curriculum as a whole.

(5.) Economic practicality within available resources

The Bloomfield Hills Board of Education sponsored the Continuous-Progress Curriculum, accepted the design model, planned and developed the components for its installation, and implemented the Curriculum, K-12, without supplementary outside funding. Since January of 1968 limited funding has been available from the U.S. Bureau of Research for the ES '70 Coordinator and for constructing a model set of behavioral objectives. Granted, financial problems have plagued the experimental program, but with the present level of curriculum development, a school district should be able to individualize instruction if its budget is flexible and the staff members are dedicated to the philosophy of recognizing individual differences and meeting the unique needs of each student.

The curriculum is designed for replication in any school environment: high-, average-, or low-socio-economic status, an urban, suburban, or rural district, and in any geographical area.

b. Objectives for the Local ES '70 Coordinators: --

The previous discussion of the extent to which the curriculum objectives have been met demonstrates the fact that Bloomfield Hills has made operational the many facets of the "organic" curriculum, primarily those criteria demanding equal educational opportunity, such as treating every student equally as a unique individual and integrating academic and vocational skills.

1.) TO DELIMIT GENERAL PURPOSES OF THE ORGANIC CURRICULUM TO THE LOCAL SCHOOL DISTRICT.

Numerous meetings, in-service sessions, and individual conferences were scheduled continuously with the community, Board of Education, project schools, and, with special emphasis for the non-project, the traditional schools. Dr. Boston and his associates spoke at meetings, held conferences, visited classrooms, gave instructional demonstrations, and met with staff members individually during the three school years and also during each of the summers.

2.) TO UTILIZE ALL AVAILABLE FUNDING SOURCES FOR SUPPORT.

Available sources for financial support are limited to those agencies which are interested in innovation and research. Bloomfield Hills does not qualify for the lucrative programs in compensatory education for the educationally and economically deprived child. Many avenues have been explored; both in governmental agencies and private-funding organizations have been investigated. Liaison with other school districts eligible for Title I and/or vocational-education grants has been attempted, but such consortia have not, as yet, developed. Title VI and EPDA moneys have been requested, but again, priorities have gone to students for whom it was assumed there was a greater need. ESEA Title III, a program tailor-made for innovation and educational change has not funded new projects in Michigan for some time. This year the State Department solicited Letters of Intent for Title III but the total for funding will be nominal in relation to the quantity of initial Letters. Paradoxically, the priority items for RFP's were in no way compatible with the construction of components for developing the "organic" curriculum. A separate resource was the reception of a small grant from the State Department under ESEA Title V. This support was for a study to construct a model for strengthening administration in a district fraught with the problems connected with curriculum revision and change.

3.) TO DEAL WITH A VARIETY OF COMPLEX QUESTIONS WHICH MAY ARISE FROM A RADICAL REMODELING OF THE SECONDARY CURRICULUM.

Many of the questions concerned with a radical remodeling of the secondary curriculum do not have easy answers. In fact, they may defy analysis and reply. In truth, Dr. Boston has not made a pretense of answering all the pertinent questions. Nevertheless, he has made every effort to assist and supply information to all those, locally, statewide, and nationwide, who have formulated the questions. Many of the answers were predicated on the many experiences which have occurred locally. Dr. Boston has become more knowledgeable on account of the sucesses, profited from the pitfalls, and been supported by the results, some indicating continued applications and others suggesting modification or change.

4.) TO PREPARE A CLIMATE FOR, AND BRING ABOUT, CHANGE IN THE ATTITUDES AND BEHAVIOR OF PEOPLE SO THAT THE CURRICULUM BECOMES LEARNER CENTERED.

The activities of Bloomfield Hills speak for themselves in this area. Dr. Boston has been able to convince a well-established conservative school district to initiate a learner-centered curriculum program, K-12. The program looked at the child as an individual, discarding discrimination between academic and vocational courses of study, and discontinuing practices for grouping students homogeneously.

5.) TO DEVELOP AN INTEGRATED, COMPREHENSIVE CURRICULUM, GRADES NINE THROUGH TWELVE.

The integrated comprehensive curriculum has been designed; it has been installed -- coordinating instructional modules within each building and articulating instruction among buildings and between levels. The developmental process has been on-going for three years. Behavioral objectives have been reviewed, field-tested, revised, and critiqued. This was the position of Bloomfield Hills when support for a fulltime coordinator to monitor and supervise the progress of this monumental task was phased out.

6.) THE ACT AS AGENT FOR COMMUNICATION.

Hundreds, perhaps thousands, of communications -- conferences, letters, and memos -- have crossed Dr. Boston's desk. Some are referred to in this report, many others are described in greater detail in the Quarterly Progress Reports. In this connection, however, it would be almost impossible to itemize the flood of requests that have been pouring in from every education level: state superintendents of Public Instruction, directors of research laboratories, superintendents of schools, teachers, and lay persons alike.

7) TO EVALUATE EACH STEP OF THE PROGRAM.

The program, to date, has been evaluated statistically with data gathered from standardized-test results. These data were highly unsatisfactory because the measures were not based on performance standards; rather, they described, by and large, items illustrating content achievement. Evaluative items, criteria for attaining the performance specifications of the objectives, give evidence of achievement unilaterally but do not serve as a basis for comparison with other types of curricula.

3. Implications of the Results of the Study for Education

The results from Bloomfield Hills project schools have many implications for education in general. They demonstrate that staff members at the local level have the potential for implementing a learner-centered curriculum. Furthermore, without locking teachers and/or students into a rigid system, it is possible to specify a major portion of a curriculum in behavioral objectives, arrange these objectives in a sequence, and allow students to progress through the sequence as rapidly as they are able. Both teachers and students are offered a wide range of choices in methods and materials to fulfill the stated objectives and, in some cases, students have a choice of which objectives they will fulfill or to specify their own objectives subject to the approval of designated personnel.

Implementation of the Bloomfield Hills program revealed that many students could function with a minimum amount of teacher direction and could assume much responsiblity for their own learning. Test results and periodic quality-control checks revealed that a number of students were capable of achieving far beyond the courses typically taught at given levels while other students were totally incapable of functioning successfully in so-called grade-level courses, e.g., Algebra I in ninth grade.

Finally, youngsters who followed a specific cognitive sequence could demonstrate required knowledge or skills more efficiently than students following a random sequence. It was for this reason that the curriculum was evaluated for cognitive balance to insure that students experienced higher level thinking skills, such as predicting and hypothesizing.

B. RECOMMENDATIONS

From the point of view of cost/effectiveness in terms of the position of the Continuous-Progress Curriculum as an on-going educational system in Bloomfield Hills, the ES '70 Project has been successful in Bloomfield Hills. Much research and development, however, are still needed in many areas. The recommendations evolving from the experiences of the past three years are categorized to describe these areas:

1.) In-Service

2.) Production and Publishing

3.) Computer Management

4.) Support by Governmental and Private Funding

1. In-Service

Go-power is, to a great extent, people power. Conscientious persons, well-educated persons, ambitious persons -- all of these have characteristics desirable for developing the "organic" curriculum, but they do not necessarily meet requirements to be effective. To produce results one needs to know what it is, what should be done, how it should be done, and who should do it. This fact is doubly true for instruction. Teachers must know how to individualize a classroom: the logistics, classroom arrangement, utilization of media, method for measuring progress, individual planning, et cetera.

At this point colleges and universities are not preparing teachers to implement the type of program developed in this project. Secondary teachers, especially, are ill-prepared to handle an individualized instructional program. Moreover, parents and students, too, must be oriented to a totally new philosophy of education and to a totally new instructional program.

For these purposes in-service training sessions are essential at all levels: administrators, supervisors and teachers. This instruction could be accomplished through released time, pre-service activities and/or summer workshops.

2. Production and Publishing

Bloomfield Hills has created curriculum materials to the extent that producing them locally has become a burden. The project schools need self-instructional materials every day for every classroom. This amount of materials, of itself, is considerable; added to this total are additional materials requested by teachers in the non-project schools who are being introduced to a program for individualizing instruction.

During the project period of E S'70, Bloomfield Hills has not had the capability or budget to satisfy all requests for objectives and materials. This difficulty is put into proper perspective when the count of behavioral objectives alone would go well over a couple of thousand.

The previous paragraph makes it quite obvious that the project data should be published and made available to any school district or educational agency expressing an interest in a learner-centered curriculum.

3. Computer Management

The most needed instructional tool is a computer-management system. It is impossible to expect teachers to function as human computers over an extended period of time. A management system would make it possible to retrieve data on such things as:

1.) Relative effectiveness of various media,

2.) Relative effectiveness of various learning experiences,

3.) The success of low I Q's in performing higher-level cognitive tasks.

4. Support by Governmental and Private-Funding Agencies

As you, the readers, re-examine basic educational goals and objectives, it is the sincere hope of the Local Coordinator and his staff that you will do so based on criteria for individualizing instruction, for recognizing the recent learning theories of eminent psychologists, for accepting the role of the computer to facilitate data processing and cybernetics within the structure of curriculum design, and for measuring against the progress toward an "organic" curriculum created by successful experimental and innovative projects.

Would it seem desirable to develop model schools and/or school districts which have, intrinsically, been able to deliver by constructing a curriculum which is compatible with man's philosophy for the Seventies and incorporates the components of educational technology, the results of appropriate research, and is transmissible to any student whether he live in a ghetto, a rural area, or an affluent suburb? The answer, unanimously given, is "Yes."

Bloomfield Hills needs support to develop this model. The "organic" curriculum has been operational for more than three years from the kindergarten through the twelfth grade. This wealth of experience indicates a potential for disseminating curriculum design, curriculum materials, and curriculum consultants. For two years in order to research a federally funded project, the construction, the purpose,

and the role of behavioral objectives have been studied in a curriculum for individualizing instruction. Experience gained from conducting this research will contribute greatly toward training student teachers and experienced teachers in the act of teaching in classrooms where a student's educational program is prefaced upon his own interests, aptitudes, and capabilities.

If there is one top priority, it is the recommendation that financial support be available to produce a model curriculum where evidence of contemporary educative skills and practices are in operation for all the world to see, to critique, and to admire.

APPENDIX A

SUMMER CURRICULUM WORKSHOP

Appendix A

SUMMER CURRICULUM WORKSHOP

GENERAL INFORMATION:

1. Turn in Personnel Data Sheet (buff) if you haven't already done so.

2. COURSE TIME LINES should reflect a 60/40 time distribution as follows:

   Full year course: 108 days in individualized activities
   72 days in depth or enrichment activities

   Half-year course: 54 days in individualized activities
   36 days in depth or enrichment activities

3. NUMBERING IPO's: All course IPO's are to be numbered in sequence, 1.1, 1.2, 1.3, ...and coded to the discipline objectives in the left margin. Please do NOT follow the pattern of the Investment Packet, skipping IPO numbers to maintain the parallel with the DO number.

4. REPORT CARD-DETERMINING OBJECTIVES

   Report cards should reflect the number of COURSE OBJECTIVES a student must complete to receive a credit. A realistic number would be approximately 15-35 so that students would be completing an average of one objective every 1-3 weeks.

COURSE OBJECTIVES

Because several courses have only 5-6 major TPO's and students work on only parts of one or more IPO's/TPO's during a given marking period, these partial objectives fulfilled in individual packets or lessons may be classified as course objectives. That is, Course Objective 1 may include IPO's 1.1a, b; 1.2a, b; 1.3a, b; 1.5. Course Objective 2 may include IPO's 1.1c, d; 1.2c, d; 1.3c, d; 1.5, etc.

5. STUDENT PACKETS

   Each student packet must include the following:

   1. A statement of what the student is expected to accomplish (the objective stated in student vocabulary)
   2. Materials he's to use
   3. Procedures he's to follow
   4. Some form of self-checking device to be used prior to the post-test
   5. Time line indicating projected amount of time per packet/activity (secondary)

DIRECTIONS FOR COMPLETING WORK PLAN

After your group has reached consensus on the specific tasks it needs to complete, and after you have received your set of responsibilities, break these down into detailed tasks you will be trying to accomplish throughout the workshop. Arrange these on a priority basis and then organize them on a weekly schedule on your tentative work plan. It is understood that some flexibility must be maintained when unforeseen obstacles appear. Complete 2 copies of the work plan. Keep one as your guide and submit the other to Marilynn Wendt, Project Director. This latter copy will be used by administrators, coordinators, and consultants to provide you with the maximum amount of help possible.

APPENDIX B

CURRICULUM WORKSHOP RESPONSIBILITIES--SECONDARY

Appendix B

CURRICULUM WORKSHOP RESPONSIBILITIES-SECONDARY

1. Review the Discipline Objectives for your subject area(s).
2. Revise/reorganize/develop TPO's in light of Discipline Objectives.
3. Revise/develop IPO's, if necessary, to fit TPO's.
4. Evaluate each IPO/TPO in terms of: (Complete this after analyzing individual student progress charts from the 1968-69 school year.).
   a. Minimum performance standards (how realistic?).
   b. Time limits defined for each objective (Are these realistic for students who work at a "normal" rate? Can the objectives be completed in light of 60% of the class time being devoted to their attainment?).
   c. Clarity of specifications.
   d. Prerequisite skills necessary.
5. Organize the IPO's/TPO's into course objectives so that they reflect a logical teaching sequence. Define the number of objectives the student must complete to receive 1/2 credit.
6. Inventory available resource materials and code them to the course objectives for which they are most appropriate.
7. Develop/revise teacher packets according to given specifications.
8. Develop/revise student materials so that they:
   a. Meet the educational implications of the continuous progress philosophy.
   b. Include a rationale for including the activity within the course (How does the activity fit into the overall course?).
   c. Describe the objective(s) to be fulfilled (in student language).
   d. Reflect a wide variety of method/media options, including the option for students to suggest methods/materials to accomplish the objective(s) so that their interests may be capitalized upon.
9. Tests or evaluation criteria:
   a. Pretests
      (1) Pretests, including alternate forms, should be developed for each IPO or series of IPO's.
      (2) Sufficient items should be included to determine whether or not a student should be allowed to omit a given objective.
   b. Post-tests (Evaluations)
      (1) Evaluations should be developed for each course objective, including alternate forms.
      (2) Cumulative evaluations should be developed to check a student's progress in relation to a series of course objectives.
      (3) Major evaluations should be developed to evaluate the student's progress over each half of the course. (These are to be administered when students reach the half-way or endpoint in the course--NOT on a specified calendar date.)

APPENDIX C

OBJECTIVE EVALUATION SHEET

Appendix C

BLOOMFIELD HILLS CONTINUOUS PROGRESS CURRICULUM

OBJECTIVE EVALUATION SHEET

Name of Consultant _____ Organization/Agency _____

Course/Subject Area _____ Date _____

RECOMMENDED REVISIONS BASED ON: RECOMMENDED ADDITIONS:

Objective No.	à la Mager-4 prts.	clarity	unrealistic minimum standards	unrealistic time factor	Objective should be eliminated.	sequence should be changed	commercial materials	teacher-developed materials	learning strategies	pre-tests	post-tests	identify pre-requisites

Please check the appropriate space to indicate your response to each of the following:

	Yes	No	Undetermined
1. Are course objectives adequate to justify course credit?	____	____	____
2. Are the objectives and accompanying materials transmissible to professionally trained personnel in the subject area field?	____	____	____
3. Are the objectives of a sound educational quality to be accepted by the professional subject area groups?	____	____	____

Please list general comments or recommendations for future curriculum efforts on the reverse side and indicate whether or not you'd be willing to serve as a consultant again on some future date. Thank you for your cooperation.

APPENDIX D

INSTRUCTIONAL GUIDE

CONTENT

METHOD

MATERIAL

EVALUATION

Appendix D

INSTRUCTIONAL GUIDE

TPO _____

IPO # _____

Prerequisite (s)

CONTENT	EVALUATION

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TPO _____

Suggested Method	Suggested Material

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APPENDIX E

COMPOSITE REPORT OF

BEHAVIORAL - OBJECTIVE CHANGES

TABLE 5 COMPOSITE REPORT OF BEHAVIORAL OBJECTIVES CHANGES
October 15, 1968

	Art	Behavioral Science	Business	Communication Skills	Humanities	Foreign Language	Industrial Education	Mathematics	Music	Physical Education	Science
Four Parts - A la Mager			87	3				13			7
Clarity	3		87	32		33	142	43	.	48	20
Minimum Performance			33	12		33	142	14		48	21
Time Factor Changed			14				142	22			16
Objective Eliminated				107	49	39	63	10	9	179	3
Objective Replaced (Same number-entirely new)	5			14		33	12				31
New Objective (Course and/or number)	.	5	3	48	186		140	66	4	48	22
Sequence Change (Indicate previous number)			25	18		33	93	8		48	25

TABLE 5 COMPOSITE REPORT OF BEHAVIORAL OBJECTIVES CHANGES (Cont'd)

October 15, 1968

	Art	Behavioral Science	Communication Skills	Humanities	Foreign Language	Industrial Education	Mathematics	Music	Physical Education	Science
Materials Added (Commercial)		8				145	16			2
Materials Added (Teacher-Dev.)		30			33	89	30	9	48	27
Learning Strategies Added		82			33	89	32		48	
Pre-Test Developed	5	12			33	89	56	9	48	
Post-Test Developed	5	59			33	83	56		48	15
Prerequisites Identified		13	308			51	21			
Coded to Discipline Objective		87			33	145	56		48	

APPENDIX F

REFERENCES

1. Bibliography

2. Review of related research

3. Review of literature relevant to the Project

4. Review of references established to effect working relationships between experts in education and subject areas, research organizations, and the Bloomfield Hills Curriculum Project

F. REFERENCES

1. Bibliography: --

Bloom, Benjamin S. — Taxonomy of Education Objectives, Handbook I: Cognitive Domain, (New York: Longmans, Green), 1956

French, Will (ed.) — Behavioral Goals of General Education in High School, (New York: The Russell Sage Foundation), 1957

Krathwohl, David R. — Taxonomy of Educational Objectives Handbook II: Affective Domain, (New York: David MacKay and Co., Inc.), 1964

Lindvall, C. M. (ed.) — Defining Educational Objectives, (Pittsburgh: University of Pittsburgh Press), 1964

Mager, Robert F. — Preparing Instructional Objectives, (Palo Alto, California: Fearon Publishers), 1962

Sanders, Norris M. — Classroom Questions: What Kinds? (New York: Harper and Row), 1966

2. Review of related research: --

Educational technology study
George Washington University

Program for learning in accordance with needs
Westinghouse Learning Corporation and
American Institutes for Research in the Behavioral Sciences

Uses, costs, effectiveness, and essential conditions for successful use of new educational media
International Institute for Educational Planning

An information system for vocational decisions
New England School Development Council

High School for one
Anatone School District and Washington State University

Individualizing instructional experiences--A computer approach
Boulder Valley Schools, Boulder, Colorado

A study to determine how computer-aided instruction techniques can provide a faster and more economical means of training Navy personnel
Systems Development Corporation

A grant to support the system, ILLINET, an electronic computer network at the University of Illinois
National Science Foundation

Cooperative project in educational development
Center for Research on Utilization of Scientific Knowledge, University of Michigan

3. Review of literature relevant to the Project:--

In his article "All Is Not Nonsense," published on pages 485 - 488 of the Arithmetic Teacher in October, 1966, Dr. M. Ferrer McFarland states, "A child really learns through relationship and one-to-one correspondence."

Dr. T. Darrell Drummond concludes in his article, "Freedom To Grow," from Childhood Education in September 1966, "And so it goes in the climate and structure that bring out the promise in a child. Time alone, time together. A casual working arrangement for each to find freedom:... and above all, freedom to grow."

The November 1966 issue of the NEA Journal has a special section on individualizing instruction. As a point of reference, the article contains some classroom tested ideas for individualizing elementary language arts, mathematics, secondary English, and industrial arts.

The October 1966 issue of Education magazine has an interesting article on teaching ability-grouped classes. Professor Isabel Pfeiffer of the University of Akron indicates that student achievement and other aspects of behavior do not seem to differ in homogeneous and heterogeneous classes which makes it difficult to justify ability grouping.

Science Research Associates' bulletin, Inquiry and the Individual Learner, discusses cognitive motivation, "Learning that capitalizes on and expands the cognitive motivation of curiosity cannot rely on the traditional teaching approach of showing, explaining, giving, and telling. ... It emphasizes skills as things of and in themselves instead of tools for opening avenues to learning and creativity."

Dr. James W. Brown, author of the article, "A-V and Library: Complement or Merge," in the January 1967 Educational Screen and Audio Visual Guide contends that the time has never been more propitious for us to remake the educational media service that heretofore has been only a dream which we really never believed could be achieved.

Marshall McLuhan expressed himself in the February 21, 1967 issue of Look by describing the new school will have a different kind of atmosphere for students in that they will be much freer, much more involved, and motivation will come from accomplishment itself, for no one has to be forced to play.

Dr. Bernice J. Wilson in an article, "The Promise of Multiage Grouping for Individualizing Instruction," in the April 1967 issue of the Elementary School Journal says, "This multiage organization is designed to support the development of individuality in pupils and to encourage the type of teaching that fosters this development."

The April 1967 issue of Phi Delta Kappan includes background information on the National assessment program as well as some of the skills which the committee, including Dr. Ralph W. Tyler, President, has recommended to be measured by the assessment program.

The Association for Supervision and Curriculum Development published in 1967 a booklet entitled, The Humanities and the Curriculum. Included are several articles by noted authorities on the humanities.

The May 20, 1967 issue of The Saturday Review includes the following statement by Dr. Jean Piaget, "Each of the stages (of learning) is essential for the development of the following stages. ... Each stage integrates the preceding stage and prepares the way for the following one."

In a recent issue of The PTA Magazine, Herbert A. Thelen, Professor of Educational Psychology at the University of Chicago, repeats the well-known but often disregarded knowledge that in the realm of school achievement research findings do not clearly support homogeneous ability grouping.

He replies to the question titling his article, "What's New in Grouping?", in different ways, including the following:

1. To select a group of students which a particular teacher can reach- those who can, in some way, identify with him,

2. To engage children in groups which seem purposive, worthwhile, and even exciting to them,

3. To encompass and to capitalize on, in grouping, the range of student readiness, motivations, and abilities,

4. To operate a variety of subgroupings for carrying our particular projects, holding seminars or discussion groups, or having leaderless "bright idea" groups, and

5. To assign project committees within a structure of formal or informal arrangements.

In an article entitled, "The Humanities Almost at the Crossroads," in the May/ June 1967 Spotlight, Dr. Fred Wilhelms describes many of the exciting things taking place in humanities curricula throughout the Nation. He says, "The essence of the humanities is to help people become human; ... First they have to be for all the youngsters."

Mary Broderick has authored an article, "Creativity in Children" for the November 1966 issue of National Elementary Principal. She describes an environment conducive to creativity, "They have arranged the classroom environment so that there were lessons for the whole class which were enriching and stimulating, lessons for small groups because of their special interests or needs, and individual conferences with students to motivatefurther work,.."

Dr. John I. Goodlad mentions many of the current projects going on in curriculum and discusses the role of the administrator and teacher in each in an article, "Beyond Survival for the Elementary Principal," The National Elementary Principal, September 1966.

Gladys Natchez, the author of "From Talking to Reading Without Really Trying," in The Reading Teacher, January 1967, states, "First, we can help each child move forward at his own pace so that he becomes neither unchallenged nor overwhelmed."

J. Fred Weaver challenges teachers in the February 1967 issue of The Instructor when he asks the question, "Are you ready to individualize mathematics?" He then proceeds to develop the facets of individualization.

An interesting editorial in the Fall 1966 edition of the Michigan Journal of Secondary Education, written by John H. Suehr, describes the school of tomorrow, "The program for each student will be ungraded; and it will be planned to fit what he is ready to learn and wants to learn."

James E. Eisele describes the four phases of the diagnostic process for prescribing learning strategies in the January 1967 issue of Educational Leadership.

The 1967 Yearbook of the Association for Supervision and Curriculum Development is Evaluation as Feedback and Guide which is predicated on the premise that we do not need to concern ourselves with how to evaluate, but rather how to use evaluation as a positive force.

Reading is in the spotlight in the March 1967 issue of the Grade Teacher. One of our favorite authors, Dr. Roma Gans emphasizes that children are unique individuals and teachers have an obligation to treat them as such, providing not only for their individual differences in skill development, but also for their reading interests and their reading for pleasure.

E. Paul Torrance, an authority in the study of creativity in children, believes that "Creative functioning and development among school children can be facilitated by deliberate methods, sequences of guided experiences." He discusses creativity in an article, "Uniqueness and Creativeness: The School's Role," in the March 1967 issue of Educational Leadership.

A recent publication, The Computer in American Education, edited by Donald D. Bushnell and Dwight W. Allen, purports to be an authoritative exposition of the potentialities and limitations of computer technology in education.

The book is a collection of essays pertinent to the subject of automated data processing for education. For instance, Robert Anderson of Harvard has written a chapter on "Sustaining Individualized Instruction through Flexible Administration"; Patrick Suppes of Stanford has an essay on "Using Computers To Individualize Instruction"; and Judson T. Shaplin, Professor of Education at Washington University, discusses "Computer-Based Instruction and Curriculum Reform."

In the conclusion Karl L. Zinn appraises the computer's role in educational data processing by remarking that "the immediate justification for computer systems in education today lies not in instructional value but in research and development payoffs."

The book, The Non-Graded School, has been presented as a part of the Exploration Series in Education with John Guy Fowlkes, its advisory editor.

This book, hot off the presses of Harper and Row Publishers, New York, discusses and evaluates the programs for reorganizing schools toward the abandonment of traditional grade classification. Richard I. Miller, Director of Program on Educational Change, is the editor and has made contributions personally to the book. The other authors are Carl L. Byerly, Assistant Superintendent of the Detroit School System, Robert F. Carbone, Special Assistant to the President at the University of Wisconsin, Donald Erickson of the Midwest Administration Center, University of Chicago, Richard D. Gale, Principal of West Corners Elementary School, Endicott, New York, and Stuart C. Rankin, Director of the Michigan-Ohio Regional Educational Laboratory. They have presented chapters dealing with such topics as the historical and sociological perspectives of the non-graded movement, criteria for evaluating a non-graded school program, change agentry and the non-graded program, and continuous-progress education.

4. Review of references established to effect working relationships between experts in education and subject areas, research organizations, and the Bloomfield Hills Curriculum Project:--

Dr. Bertram Masia, Case Western Reserve University
Behavioral objectives in the affective domain

Dr. Edward Bantell, Dr. Thomas Dutton, Dean of Students, and
Dr. Harry Hahn, Oakland University

Dr. Joseph Hill, Oakland Community College

Dr. Walter Ambinder, Wayne State University

Dr. Ralph W. Tyler, Carnegie Foundation
National assessment

Dr. Robert Branson, Pleasonton, California
Learning research

Dr. John Suehr, Michigan State University

Dr. Bruce Tuchman, Rutgers University
Behavioral objectives

Dr. David Wells, Oakland County Intermediate School District
Mathematics education

Dr. Fred Wilhelms, Associate Secretary of the National Association of Secondary Principals

Dr. Harvey J. Brudner, Westinghouse Learning Laboratory

Dr. Dorothy Mial, National Training Laboratories

Dr. R. T. MacFarlane, Vice President, Engineering, Graflex, Incorporated

Dr. William Ward, Northwest Regional Laboratory
In-service training-institutes and research methods in inquiry

Dr. Wayne Myers, Appalachia Educational Laboratory
Development of behavioral objectives

Dr. Louis Bright, Baylor University
Individualized curriculum model

APPENDIX G

NINETEEN SIXTY-NINE AND NINETEEN SEVENTY SCHEDULE OF DESIGN, PLANS, AND OPERATIONAL PHASES FOR DEVELOPING AND DEMONSTRATING A FULLY INDIVIDUALIZED K-12 CURRICULUM

Bloomfield Hills School District

Bloomfield Hills, Michigan

NINETEEN SIXTY-NINE AND NINETEEN SEVENTY
SCHEDULE OF DESIGN, PLANS, AND OPERATIONAL PHASES
FOR DEVELOPING AND DEMONSTRATING A FULLY INDIVIDUALIZED K-12 CURRICULUM

ROBERT E. BOSTON
ASSISTANT SUPERINTENDENT FOR CURRICULUM and
ES '70 COORDINATOR

MARCH 4, 1969

ES '70 CONFERENCE
SAN ANTONIO, TEXAS

DATE

PROJECT

1969 Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

1970 Jan Feb Mar Apr May Ju

A. Academic Perf. Obj. (Research Project No. 8-0176)

1. Validate Learning Taxonomy in Bloomfield Hills
2. Ordering Objectives in Cognitive Learning Sequences
3. Cooperation with Ass't Dean of the Education School of Wayne State University
4. Definition of Nature of Each Discipline and Ordering of Discipline Objectives
5. Allowance for Balance between Skills and Content, K-12
6. Terminal Performance Objectives Written for Each Level of Instruction K-12 Compatible with Valid Cognitive Terminology
7. Course Objectives Constructed for a Course of Study which Reflects Cognitive Skills as Balanced through Specific Content as Identified for a Given Course at a Given Level

B. Vocational Performance Objectives

1. Dissemination of Information through Article for School Shop periodical, "Individualizing Instruction -- for What?"
2. Construction of Objectives for Home Economics Courses

C. Special Education Perf. Obj.

1. Research To Individualize
   a. Instruction for Multiply Handicapped

Project Planning & Lead Time.

Project Execution Time

DATE / PROJECT	1969 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	1970 Jan	Feb	Mar	Apr	May	Jun
Hard-of Hearing and Deaf Children																		
b. Coordination with Oakland Intermediate District and the Learning Laboratory of Wayne State University																		
D. Evaluation and Cross-Indexing																		
1. Common Learnings Identified within Each Subject-Matter Area and Cross-Indexed within the Hierarchy of Cognitive Skills through the Discipline Objectives																		
2. Identification of Meaningful Areas of Concentration for the Affective Domain As They Reflect Our Situation																		
3. Objectives Written in Performance Terminology with Exemplification of the Affect																		
4. Arrangement of the Areas in Order to Match the Cognitive Hierarchy																		
5. Investigation of the Psycho-Motor Domain Relating How Psycho-Motor Skill Originates in the Cognitive																		
E. Development of Inst. Modules																		
F. ES '70 School Implementation																		
1. Establishment of a True Humanities Course Validated through Field-Testing by Means of Performance Objectives; Multi-Media Approach																		

DATE / PROJECT	1969 Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec	1970 Jan Feb Mar Apr May Jur
Based on Student Interests, Aptitudes, and Rate of Achievement; and Student Achievement 2. Establishment of a Laboratory Setting for Instruction Giving Exposure to Classroom Logistics and Academic Problems and Solutions To Serve As a Model for Teachers, Administrators, and Others Interested		
G. ES '70 School Evaluation		
H. Staff Development		
I. School Management		
J. Evaluation 1. Research Evaluation Testing Performance Objs., Time Tolerances and Adequacy, and Field-Testing Effectiveness of Methods and Media 2. Reporting System Quantified through Quality-Control Check Data		

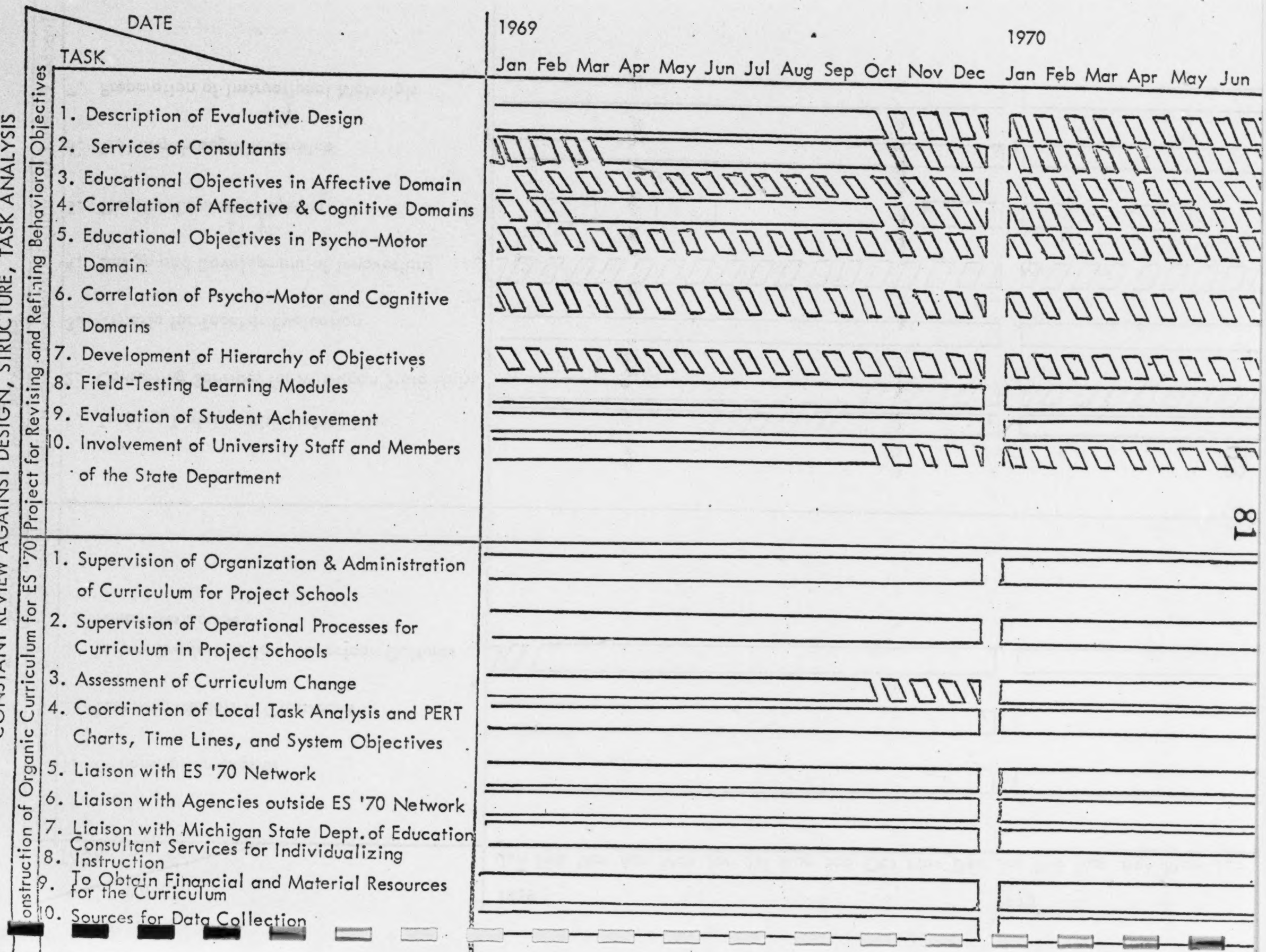
EMPHASIS ON PUBLIC RELATIONS

DATE / TASK	1969 Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec	1970 Jan Feb Mar Apr May Jun
Student Contact as Classroom Teacher		
1. Demonstration Classes		
2. Teaching Models in Classrooms		
3. Innovative Instruction: American Cultures Humanities Course		
Teacher Contact To Fortify Instructional Responsibilities		
1. Teacher Training with Universities		
2. Consulting Services for Michigan State Univ.		
3. Criteria for Teacher Evaluation		
4. Design and Development of Innovations		
5. Quality-Control of System		
6. Training through In-Service		
7. Preparation of Instructional Materials		

CONSTANT REVIEW AGAINST DESIGN, STRUCTURE, TASK ANALYSIS

Project for Revising and Refining Behavioral Objectives

Construction of Organic Curriculum for ES '70


DATE
TASK
1969
1970
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
Jan Feb Mar Apr May Jun
1. Description of Evaluative Design
2. Services of Consultants
3. Educational Objectives in Affective Domain
4. Correlation of Affective & Cognitive Domains
5. Educational Objectives in Psycho-Motor Domain
6. Correlation of Psycho-Motor and Cognitive Domains
7. Development of Hierarchy of Objectives
8. Field-Testing Learning Modules
9. Evaluation of Student Achievement
10. Involvement of University Staff and Members of the State Department
1. Supervision of Organization & Administration of Curriculum for Project Schools
2. Supervision of Operational Processes for Curriculum in Project Schools
3. Assessment of Curriculum Change
4. Coordination of Local Task Analysis and PERT Charts, Time Lines, and System Objectives
5. Liaison with ES '70 Network
6. Liaison with Agencies outside ES '70 Network
7. Liaison with Michigan State Dept. of Education
8. Consultant Services for Individualizing Instruction
9. To Obtain Financial and Material Resources for the Curriculum
10. Sources for Data Collection

UNDERTAKINGS TO OBTAIN FINANCIAL SUPPORT AND MATERIAL RESOURCES FOR IND. INST.

TASK \ DATE	1969 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	1970 Jan	Feb	Mar	Apr	May	Jun
Data Collection To Justify Requisites																		
1. School Statistics and Services																		
2. Community Statistics and Economic and Education Potentials																		
3. Evaluation of Bloomfield Hills Curriculum for Individualizing Instruction																		
4. Quality Control Assessing Inner Curriculum Development																		
5. Assessments of Program to Determine Priority Areas for Research																		
6. Establishment of Research and Development Projects																		
7. Budgetting for Data Collection																		
8. Publications																		
Seeking Out Funding Possibilities for Curriculum Support																		
1. Study of Available Pertinent and Informative Data																		
2. Personal Implication in Project Opportunities																		
3. Coordination with Universities and Other Interested Agencies																		
4. Cooperation with Other Members of ES '70 Network																		
5. Education Professions Development Act: Provisions and Importance for Local School Districts																		
6. Priorities Emanating from the Research Division of U.S.O.E.																		
7. Continued Correspondence with ESEA Title III - Pace Programs																		
8. Plans for Processing with New Educational Technology																		

TASK \ DATE	1969 Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec	1970 Jan Feb Mar Apr May Jun
Field-Testing and Demonstration of Fully Individualized K-12 Curriculum		
1. Development of Instrumentation in the Affective Domain		
2. Development of Instrumentation in the Psycho-Motor Domain		
3. Incorporation of Objectives in Affective with Cognitive-Oriented Objectives		
4. Continued Evaluation of Local Program in Accordance with Performance Standards		
5. Revision and Greater Quantity of Materials at Different Instructional Levels		
Further Activities for Advancing Program		
1. Computer-Managed Data Bank of Teaching Strategies		
2. Computer-Managed Data Bank for Data on Teacher Effectiveness		
3. Computer-Managed Data Bank of Student Achievement in Attaining Behavioral Objectives		
4. Computer Management for Individualized Program Prescription		
5. Publication of Locally Prepared Materials		
6. Publications Based on Curriculum Design and Theoretical Considerations		